By foot at ease:

Environmental affordances for wellbeing in walking

Thomas Höjemo

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BY FOOT AT EASE: ENVIRONMENTAL AFFORDANCES FOR WELLBEING IN WALKING

Tese apresentada ao Programa de Pesquisa e Pós-Graduação em Arquitetura (PROPAR) da Universidade Federal do Rio Grande do Sul (UFRGS), como requisito parcial para obtenção do título Doutor em Arquitetura.

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In memory of my sister Anette Höjemo. Your language learning abilities and linguistic exploration eagerness still inspire me. I wish you were here, so we could continue to take walks in nature. I miss you. Jag saknar dig. Du fehlst mir.

Abstract in English

Walking has been shown to provide benefits for our health and also for the environment. Research has also shown that if the built environment is adapted for pedestrians, people walk more. However, there is a lack of qualitative research in architecture and urban design on walking at the micro (streetscape) scale. To address this research gap, this study explores how people living in the Swedish town Varberg experience walking in an urban setting and how these experiences affect their willingness to walk through stating the following research question: 'How do inhabitants experience environmental and urban aspects in the walkscapes of their neighbourhood in Varberg, Sweden and how do these experiences affect their walking choices?'

Seventeen walk-along interviews were made while walking with residents in the Varberg town. Interviews were transcribed and analysed using qualitative content analysis as the method. Eight categories emerged: a) green aspects, b) urban accessibility, c) physical feasibility, d) place attachment, e) safety, f) social aspects, g) health and wellbeing and h) accomplish task. The participants appreciated having destinations and environments nearby; proximity incentivised them to walk more. However, they indicated shortcomings regarding the information on wayfinding and physical accessibility, as well in the physical environment in regards to freedom of movement for people with physical disabilities.

Findings were interpreted and practical recommendations made on a) increased stimulation through variation and change, b) proximity, availability and fine-grained uses, c) information on wayfinding and universal accessibility, d) adaptation of the built environment towards people with physical disabilities, e) place attachment through the coherence in building scale, f) perceived safety through reserved pedestrian space and visual overview and finally, g) lingering and sitting options for comfort and social contact. The walk-along interview methodology worked well and is recommended for further research in architecture and urban design. More research is needed on environments for walking in relation to a) variation and change, b) universal accessibility, c) wayfinding information and d) artefacts for sitting or lingering along the walking route traversed.

Resumo em português

Caminhar é benéfico para a saúde, bem como, para o meio ambiente. Pesquisas têm demonstrado que se o ambiente construído estiver adaptado para pedestres, as pessoas caminhariam mais. Todavia, em arquitetura e urbanismo existe uma lacuna de pesquisa referente aos estudos qualitativos sobre o caminhar na escala da rua. O presente estudo explora como habitantes da cidade sueca de Varberg experimentam caminhar num contexto urbano, e como estas experiências afetam a vontade de caminhar mediante a seguinte pergunta de pesquisa: 'Como os habitantes experienciam aspectos urbanos e ambientais ao caminhar pelos seus bairros na cidade de Varberg, Suécia, e como essas experiências influenciam as suas decisões referente a mover-se a pé?'

Dezessete entrevistas-caminhante foram feitas durante caminhadas com habitantes da cidade de Varberg. As entrevistas foram transcritas e analisadas com o método de análise de conteúdo. Oito categorias surgiram: a) presença de vegetação, b) acessibilidade urbana, c) viabilidade física, d) percepção do lugar, e) segurança, f) aspectos sociais, g) saúde e bem-estar e h) realizar tarefas. Participantes apreciaram ter lugares (destinos) e diferentes tipos de ambientes próximo de suas residências; isso incentivou-os a caminhar mais. Todavia, eles indicaram faltas em acessibilidade e sinalização para pessoas com deficiências físicas. Os resultados foram interpretados e recomendações práticas foram estabelecidas de: a) aumentar o estímulo com variação e mudanças no ambiente, b) proximidade, utilidade e legibilidade, c) sinalização para orientação e acessibilidade universal, d) adaptação do ambiente para pessoas com deficiências físicas, e) lugares com equilíbrio entre a escala dos edifícios, f) segurança para o espaço reservado aos pedestres e controle visual e finalmente g) opções de espaços com conforto ambiental e contato social. A metodologia das entrevistas-caminhante funcionou adequadamente e recomenda-se para pesquisas futuras em arquitetura e urbanismo. Faz-se necessários mais estudos sobre estímulo e variação no ambiente para caminhar, informação e sinalização para acessibilidade universal, e mobiliário urbano para a rota de caminhada.

Sammanfattning på svenska

Att gå mer är fördelaktigt både för hälsa och miljö och forskning visar att om den byggda miljön är anpassad för att röra sig till fots så går människor i högre utsträckning. Trots detta saknas kvalitativ forskning inom arkitektur och stadsplanering om att gå i mikroskalan (t.ex. gaturummet). Den här avhandlingen undersöker hur boende i den svenska staden Varberg upplever att gå i en urban miljö, och hur dessa upplevelser påverkar benägenheten att röra sig till fots genom att ställa följande forskningsfråga: 'Hur upplever invånare i Varberg, Sverige miljö- och urbana aspekter av gångmiljöerna i deras egna stadsdelar, och hur påverkar dessa upplevelser hur de väljer att röra sig till fots?"

17 "gångintervjuer" gjordes under promenadturer med invånare i staden Varberg. Intervjuerna transkriberades och analyserades med kvalitativ innehållsanalys som metod. Åtta kategorier kom fram: a) gröna aspekter, b) urban tillgänglighet, c) fysisk möjlighet, d) platsanknytning, e) trygghet och säkerhet, f) sociala aspekter, g) hälsa och välmående, samt h) utföra uppgifter. Att ha målpunkter och miljöer nära var något som uppskattades av deltagarna, och medförde att de rörde sig till fots mer. Deltagarna pekade på brister i information och fysisk utformning för tillgänglighet, samt i vägvisningsinformation. Resultaten tolkades och praktiska rekommendationer togs fram om a) stimulering genom variation och skiftningar, b) närhet, tillgänglighet och finmaskighet i utbud, c) information för vägvisning och universell tillgänglighet, d) anpassning av den byggda miljön gentemot personer med fysiska funktionshinder, e) platsanknytning genom sammanhang i bebyggelsens skala, f) trygghet genom reserverat utrymme för fotgängare och visuell överblick, samt g) möjligheter för att stanna till och sitta ned för komfort och social kontakt. Intervjumetoden med gångintervjuer fungerade bra och rekommenderas för fortsatt forskning i arkitektur och stadsplanering. Mer forskning behövs om miljöer för att röra sig till fots i relation till variation och skiftningar, information om fysisk tillgänglighet och vägvisning samt om artefakter för att stanna till eller sitta under promenaden.

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1. Introduction

The first steps of a baby is a grand occasion; an important passage in life. For adults, to walk is a primary means of locomotion, to the benefit of health and environment. This study aims to make walking more attractive through expanding knowledge on how to better plan and design walking environments. 17 walk-along interviews were performed with residents of Varberg, Sweden about their experience of walking in their local environment. From their discourses, the findings could be organised in eight categories: Green aspects, Urban accessibility, Physical feasibility, Place attachment, Safety, Social aspects, Health and wellbeing, and finally Accomplish task. These findings were synthesised and contrasted with earlier research, to form practical architecture and urban planning design suggestions.

On the next page the *Research problem*, with background, relevance and research gaps, is introduced. The *Purpose statement* follows (p. 23), after which the guiding *Research questions* (p. 24) are introduced. The *Research design* (p. 26) outlines the methodological choices, such as the use of a qualitative approach, followed by a definition of *Key concepts and terms* (p. 28). Finally, an *Outline* (p. 31) of all chapters is presented.

1.1 Research problem

The rationale of this study is argued for from a societal viewpoint in the *Background* (below), followed by the research-wise rationale in *Relevance* (next page) and *Research gaps* (p. 20).

Background

Historically, cities were designed for walking; typically making it possible to traverse a medieval town in less than an hour (Newman & Kenworthy, 1999). Still today, some medieval towns are catered towards carfree transportation, such as Venice (Crawford, 2002). However, during the 20th century, most towns and cities were adapted/built prioritising car transport (Gehl, 2010). For pedestrians, it became difficult and unpleasant to move about, and urban life in a social sense was reduced (Gehl & Gemzøe, 2004). Walking was not always seen as a full mode of transportation and was often lumped together with cycling, although it is an entirely different mode (Wigan, 1995). Yet, walking is a complex movement mode with a rich gamut of variants; we can walk to saunter, wander, explore, be social, shop, socialise, talk or simply promenade. The purpose of moving on foot varies too; e.g. we walk to reach a destination, to get fit, to relax and/or to enjoy beautiful surroundings.

In contemporary urban design and planning, walking has gained a renaissance. Towns and cities around the world make concrete plans to make it easier to move about on foot (Laker, 2017; World Economic Forum, 2019). In the scientific world, research studies on 'walkability' (walking-friendliness) have multiplied in number (H. Wang & Yang, 2019). There are several reasons for this rediscovery of walking as an attractive mode both from the individual and urban point of view. To walk is advantageous for health and wellbeing (Murphy et al., 2002; Warburton et al., 2006). The environmental aspect is another advantage, as emissions are minimal compared with other transport modes (The Ramblers' Association, 2010). Our town-, street- and parkscapes can become more pleasant when more space is allocated to social uses (Mehta, 2008) and greenery (Adkins et al., 2012), making it more enjoyable to move about and linger in them.

Relevance

Research on walking environments is relevant from a societal perspective, as walking and walkable areas bring health, environmental as well as socio-economical benefits. More walkable areas lead to increased walking, with substantial individual and collective benefits.

A positive relation between walkable urban areas and actual walking

Walkable urban environments make us walk more. An international meta-study establishes consistent relations between walking and the walkability factors density, distance to services and land use mix (Saelens & Handy, 2008). Residents in Stockholm neighbourhoods with high street connectivity, land use mix and residential density walked 50 min. more per week compared to those in low walkability neighbourhoods (Sundquist et al., 2011).

Walking brings benefits for health, wellbeing, environment and economy

Walking is positive for physical health. Walking at a brisk speed of 30-60 minutes per day reduces the risk of cognitive decline (I.-M. Lee & Buchner, 2008). At least two hours of walking per week is associated with an incidence reduction of premature deaths of 39-54 per cent (Warburton et al., 2006). A US study of 49 000 persons demonstrates a lower risk of hypertension and heart disease with exercise equivalent to 30 minutes of medium-pace walking per day (Williams & Thompson, 2013).

To move about on foot also brings benefits for mental wellbeing. A lot of studies show that mental wellbeing benefits from exercise in general (Penedo & Dahn, 2005), although fewer studies exist on walking in particular (Atkinson & Weigand, 2008). One meta-study reports a reduction of tension and anxiety after brisk walking 30 min. per week for six weeks (Murphy et al., 2002). After park walks, Swedish respondents showed reduced levels of depression, anger and anxiety and also felt revitalised (Marcus Johansson et al., 2011).

Increased walking has environmental benefits, both on the street (micro) scale and the town (macro) scale. By replacing journeys made by car, the emissions of carbon dioxide and noxious fumes can be reduced and in addition, walking does not produce noise pollution (The Ramblers' Association, 2010). Furthermore, there are substantial advantages with walking from a socioeconomic point of view. Public costs savings are made as transport

externalities are reduced. For example, municipalities reduce costs for road and parking facilities and consumers can save on less vehicle expenses if they have destinations on a walking distance and therefore do not need a car (Litman, 2018).

In summary, walking brings benefits for physical health, mental wellbeing, the local and global environment as well as the economy. Research that provides knowledge towards designing more walkable urban areas thus has clear relevance for society.

Research gaps

Research on walkability is strong on a macro scale, especially on objective, aggregate walkability factors such as density, land-use mix and diversity of use. Research on walking for transport is substantially more common compared to studies on walking for leisure. More academic knowledge is needed on the experience of walking from a user viewpoint, to provide conceptualised, integrated and qualitative understandings of walking environments.

Several researchers point out the lack of qualitative and conceptual studies. Mehta (2008) observes a lack of qualitative studies on the micro-scale level. Alfonzo (2005) makes a strong point for a more conceptual and holistic understanding of walking in relation to the surrounding environment and social situation. "The importance of understanding people's experience of place and streetscape is an important element of walkability research" (p. 324) is stressed in the recommendations section of the doctoral thesis by Fitzsimons D'Arcy (2013). Health effects of neighbourhood conditions were examined in a US study, demonstrating that perceived neighbourhood qualities affected health more than what objective neighbourhood qualities did (Weden et al., 2008).

More research is needed on the micro-scale level of the streetscape

The great majority of research within the subject of walkability is focused on so-called 'objective' factors such as density and land use mix. These factors operate on an aggregated neighbourhood or city scale and are quantitative in their character. However, walking and walkability can not only be seen from an aggregate scale. When we are walking, we

experience and evaluate our immediate environment. Aspects such as the presence of greenery and opportunities for sitting are linked to this zoomed-in scale level. A focus is needed on both the aggregate and streetscape scale level to achieve walkability. A high 'objective' aggregate walkability is not sufficient if the streetscape is unpleasant to walk in. The micro-scale is important, as it is at this scale the user perceives and evaluates the surroundings.

Walking for leisure lacks research

Walking for transport is a field substantially more researched compared to walking for leisure. Constructs, especially walkability indices, through which the concept of walkability are defined are skewed towards walking for transport. These indices include density, diversity and connectivity, which are relevant when we are walking for transport, i.e. to get to a destination (Saelens et al., 2003). However, the walkability indices do not take user-centred aspects of walkability such as greenery, safety and aesthetics into consideration, which are important for leisure walking. These user-centred aspects are also of importance to mental health (Leslie & Cerin, 2008). That they are seldom part of walkability studies is shown in a meta-review study, where the connection towards walking for transport was pronounced in the examined studies, but the connection towards walking for leisure was weaker (Saelens & Handy, 2008). The same meta-study also shows that results from studies on transport walking were more clear compared to those for leisure walking.

It would be beneficial for future studies if walkability could be expanded to include aspects relevant for walking for leisure. Most commonly, user-centred aspects need research data from inhabitants directly, through qualitative research such as interviews. It would be valuable to add these aspects more systematically to the research, to grasp a fuller picture.

'Subjective', user-centred aspects are neglected

'Objective' quantitative factors such as density and diversity of uses are predominant in the existing research. Nevertheless, 'subjective' qualitative aspects such as green and open space, as well as pavement configuration and standard are also important (Du Toit et al., 2007). Quantitative measurements can be misleading; a US city can have a high objectively

measured land use mix because of big-box developments next to each other. However, from a pedestrian's subjective viewpoint these developments may not be walkable (Wood et al., 2010). Even though objective measures are easy to collect, they provide a rather limited view of walkability. They need to be complemented with other data collection methods, such as surveys or interviews of users experiences (Fitzsimons D'Arcy, 2013).

More elaborate conceptualisations of walkability would be beneficial

A more general reflection can be made on the lack of conceptualisation of the connections between walkability and other concepts. These other concepts can be of personal or social character, such as life quality. In other cases, they are aspects of the built environment, such as greenery. Connections between concepts can be very complex, especially as they often go through mediators. One of the rare studies on this theme concludes that unknown mediators exist in the field between walkability, greenness and mental health (Sugiyama et al., 2008).

Trans-disciplinary studies encompassing a wider understanding wanted

A trans-disciplinary view of walkability is needed according to Fitzsimons D'Arcy (2013). A long chain of studies often has to be combined to connect the different concepts, traversing separate scientific fields. To encompass the full connection between individual motivation for walking and walkability aspects of an urban environment such as beauty or greenery, tight cooperation between academics from urban design, landscape architecture, transport planning, psychology and health sciences would be desirable.

Synthesis: there is a lack of qualitative and conceptual studies

To sum up, there is a need for more research on qualitative, user-centred aspects of walking, walkability and walkable environment. There is a lack of research on leisure walking. Also, trans-disciplinary studies that interconnect aspects conceptually are needed.

1.2 Purpose statement

The purpose of this qualitative study is to explore how environmental aspects in relation to the practice of walking are experienced and evaluated by participants in the town of Varberg, Sweden. The study also seeks to understand what in the environment encourages and discourages walking according to the participants. Walk-along interviewing is used as the interview method: walking with participants whilst talking to them about the surrounding environment.

1.3 Research questions

The central research question (below) is the source for the research sub-questions (next page).

Central research question

The central research question is defined as:

> **How do inhabitants experience environmental and urban aspects in the walkscapes of their neighbourhood in Varberg, Sweden, and how do these experiences affect their walking choices?**

This research question will now be analysed in detail. The study entails interviewing inhabitants while walking with them. *Inhabitants* are selected on the assumption that they have a relation with, and knowledge of, their immediate surroundings. The word *experience* signals a focus on the relation between human and environment, which is researched via the concepts of needs and affordances from environmental psychology.

The question defines *environmental and urban aspects* as the focus. 'Aspect' is used (instead of 'factor') to signify the qualitative sense; they are related to the environment, but cannot necessarily be measured quantitatively. The reason for including both environmental and urban aspects is that the participants are asked about walking in general, including both walking in urban and natural settings (e.g. along the ocean or in the forest).

The study focuses on the scale of the *walkscape*. This means that for example, benches and trees are part of the scale, but not aggregated density or land-use mix (as they belong to a more zoomed-out, urban planning scale). The word *walkscape* – which is further defined in *1.5 Key concepts and terms* (page 28) – blends the words walk and landscape, and signals how the walker, walking and the environment can be seen as an integrated whole. This concept has been used as the study is qualitative, and seeks to grasp contextualised meanings, rather

than to analyse aggregated statistical factors. The participants walk in *their neighbourhood* as it is easier for them to comment on a familiar environment.

Finally, the experiences affect the *walking choices*; this entails to investigate how the quality of the walkscapes affect the participants general walking habits and also specific choices. Walking choices are here understood in a wide sense, including decisions on *if* to walk, which means that the relative attractiveness of walking versus other transport modes (such as bicycle and car) matters. Other choice aspects are *objective/destination* (e.g. to shop groceries or to get fresh air) and *which route* to take. Finally, options such as walking *together* or *alone* and walking fast for exercise or strolling calmly are included.

In summary, this study explores a chain from the environment via walking to the walker, his/her experience and finally ending with his/her evaluation on how his/her experiences affect his/her walking decisions and habits in the future.

After having syntactically analysed the research question, the next step is now to formulate specific research sub-questions.

Research sub-questions

The central research question is operationalised for the empirical research study through segmentation into three research sub-questions:

1. How do the inhabitants experience walking in their neighbourhood?
2. How do these experiences influence their walking choices?
3. How can urban and green areas be designed to encourage walking?

The first and second sub-questions steer which questions are included in the interview guide, which is detailed in the Methodology chapter (p. 61). The two first sub-questions are answered in the Findings chapter (p. 111), which categorises the discourses into eight main categories. The third sub-question orients the analysis of the interviews in the Discussion chapter (p. 261), outlining urban and natural design and planning lessons to be learned.

1.4 Research design

In this section, an overview of the qualitative approach, methodology and setting of the empirical research study is outlined. The empirical study will be discussed more in detail in Chapter 4 (p. 61), which is dedicated to the methodology and context.

Qualitative approach

This study seeks to understand people's experiences and evaluations of the environments they walk in. The topic of investigation is open-ended, meaning that aspects related to walking and the surrounding environment emerge from the participants' discourses. As this research project focuses on participants' experiences of walking and the contextualised aspects they articulate a qualitative approach is selected. This means that the results cannot be extrapolated to a whole population as would be the case in a quantitative study. On the other hand, a qualitative research design excels in flexibility; rigid numeric measurements do not need to be established at the initial phase of the research project. Instead, thanks to the qualitative approach, the environmental experiences of participants can be interpreted flexibly, with categories and themes emerging from the participants' discourses.

Methodological choices

Environmental psychology is chosen as a theoretical framework, as it connects the behaviour and experience of the person with the environment. Walk-along interviewing is used, which entails walking with the participants in their neighbourhood along a route of their choosing. Finally, qualitative content analysis is selected for analysing the interview transcripts. These methodological choices are described further in section *4.2 Research design* (page 65).

Setting

Varberg is a town of Western Sweden, with 35 000 inhabitants in the town core. Through choosing a Swedish city, participants can be interviewed the researcher's mother tongue Swedish, for an optimal understanding, including subtle nuances and culture-specific ways of expression. The size of Varberg provides the convenience of having distinct building and

street typologies present within short distances. Varberg provides both a town core with traditional street patterns and old buildings, functionalist 1960s neighbourhoods and also natural areas popular for walking within easy reach, providing a good mix of environments for the interviews. Section *4.4 Main study context: Varberg* (p. 72) provides more details.

Participants

18 participants were interviewed in total, all were inhabitants of Varberg. Two-thirds were female. More than 70 per cent (13 of 18) of the participants were born before 1960. The interviewees walked a lot; in almost two-thirds of the interviews, the reported walking frequency was every day (seven days per week). The participants are described somewhat more in the three last pages of section *4.5 Participants* (starting on page 93).

Procedure

Walk-along interviews, where participant and researcher walk together, were used to gather information. 17 interviews were conducted in the second half of 2018. Participants were recruited through personal communication, email, posters and other means. The interview discourses were audio- and GPS-recorded. The participant chose the walking route. The participant selection and recruitment is described in section *4.5 Participants* (p. 90) and the questions the participants were asked in section *4.6 Interview guide* (p. 96). The technical procedure is summarised in *4.7 Procedure* (p. 101) and described extensively in *Appendix C. Detailed procedure guide* (p. 330).

Data analysis

Interviews were anonymised and transcribed in full in intelligent verbatim transcription. The analysis of the interview transcripts was made using qualitative content analysis as the analysis method, building categories from data. In the introduction of each interview, obligatory questions were stated. The answers to these were coded in detail. Eight categories emerged from the codes: Green aspects, Urban accessibility, Physical feasibility, Place attachment, Safety, Social aspects, Health and wellbeing and finally Accomplish task, which structure the findings presented in Chapter 5 (p. 111). The analysis procedure in itself is described in section *4.8 Data analysis* (p. 102).

1.5 Key concepts and terms

After outlining a group of key concepts in environmental psychology, four central concepts will be discussed in the context of this thesis: *place*, *walkscape*, *walkability* and *wellbeing*.

Environmental psychology and its concepts: needs, affordances and transactions

Environmental psychology is trans-disciplinary, with a systems-oriented approach; focusing on an integrated environmental experience, connecting to concepts as place and place attachment, fruitful for exploring the links between users, their walking activity and environments (Bell et al., 1996; Gifford, 2015; Werner et al., 2002). A *transactional approach* means that a system cannot be divided into separate elements, but must be seen as a whole (Bell et al., 1996). A *transaction* is a series of interactions between human (or animal) and the environment. A human has *needs* that can be catered for depending on what the environment *affords*. "The a*ffordances* of the environment are what it offers the animal, what it *provides* or *furnishes*, either for good or ill" (Gibson, 1977).

The concepts of transactions, needs and affordances are useful for studying experiences of walking, as they help describe the interactions between human and environment and to observe their dynamics, influenced by both the personal and the environmental context.

Place and experience of place

People are integral of place; place needs to have a meaning for people for understanding, seeing and knowing the world (Cresswell, 2014). In environmental psychology, place is understood as where "human experiences and physical form are fused together" (Castello, 2006). Places can be studied as behaviour settings; they are linked to sensory aspects, experiences and memories (Castello, 2006). The senses are central for us to connect with our surroundings. Space becomes a place as we get familiar with it and the experience and creation of place is intimately connected to our social relations: places become dear to us together with the people we experience them with (Tuan, 1977). *Sense of place* is used to describe how we relate to places through emotions and personal experience but also through memories and collective stories to form a sense of belonging and identification.

Place attachment is a similar term in environmental psychology, which conceptualises the bond between places and people (Adams et al., 2016). Matos Wunderlich (2008) argues that walking is an active way to perceive urban places; habitual walking establishes relations with place through the haptic sense (e.g. touch) and via the dynamics of movement; we can grasp our body, the place, objects and other people in relation to each other via these two ways.

Walkscape

Walking is an *act* through places; to walk is somehow to talk (in present tense); an enunciative function that implies relations among positions, place and situations (De Certeau, 1984). The original meaning of walkscape was related to walking as sensory experience and aesthetic practice (Careri & Colafranceschi, 2002). Another definition is: "the entire landscape and environment which can be perceived through pedestrian motion" (Šćitaroci et al., 2019), In this thesis, *walkscape* is defined as an *integration* of walking, the walker and the surroundings *as a whole*; an embodied and sensory experience of moving in and between places.

Walkability

Walkability is defined by Abley (2005) as "the extent to which the built environment is walking-friendly" (p. 2). It can be divided into *transport-related walking*, e.g. to walk to the local store (Saelens et al., 2003) and *leisure walking*, e.g. walking for exercise or relaxation. Factors that influence whether we choose to walk (or not) can be sorted in objective and perceptual factors. Objective factors include *density* (i.e. dwelling density and commercial floor area ratio per area unit), *land use mix* (how fine-grained the composition of uses of an area is), and *connectivity* (the degree of integration in the street network) (Saelens et al., 2003). Perceptions of the environment mediate between the physical environment and walking behaviour. Examples of perceptual factors in urban design are enclosure, imageability and human scale (Ewing & Handy, 2009) as well as greenery and social interaction (Sugiyama et al., 2008). These factors are often related to the streetscape scale.

The view on walkability differs between disciplines and professions. Fitzsimons D'Arcy (2013) details how physical accessibility, traffic security and maintenance are emphasised in

transport, while comfort, perception, pleasantness, delight and sense of belonging are central to urban design, and density, connectivity, mixed-use and system coherence stand out in planning. Walkability is not only related to physical aspects (e.g. pavement quality), but also to the sensory field (e.g. pleasantness) as well as to the inter-connectedness of places and walking outcomes (e.g. wellbeing) (Fitzsimons D'Arcy, 2013).

Wellbeing

Wellbeing (or wellness) is associated with happiness, positive affect and life satisfaction in *hedonism*, a philosophical tradition that views the pursuit of pleasure and avoidance of pain as central in life (Dodge et al., 2012). In the view of another tradition of thought – *eudaimonia* – quality of life and to be able to fulfil one's potential are central concerns, associating wellbeing with positive psychological functioning and human development (Deci & Ryan, 2008). In newer interpretations, wellbeing is associated with happiness and quality of life (Dodge et al., 2012).

Walking is connected to wellbeing, as wellness "… includes choices and activities aimed at achieving physical vitality, mental alacrity, social satisfaction, a sense of accomplishment, and personal fulfillment" (Naci & Ioannidis, 2015). Walking may increase hedonic wellbeing through being an enjoyable activity and contribute to a positive mood, and may contribute to eudaimonic wellbeing through improved environmental autonomy and social relations (Ettema & Smajic, 2015). To walk in itself can be beneficial for physical health and for social or psychological wellbeing (either through walking together or alone) and the configuration of the walkscapes traversed also influences well-being (Gatrell, 2013).

In the context of this thesis, wellbeing is seen firstly as individual motivation for, and the result of, walking and secondly as an overall objective to strive for in the process of planning and designing walkscapes that are intended to be attractive to walk in.

Some of these key concepts will be further developed in the Literature review chapter (page 43), especially in section *3.2 Conceptual schemes* (p. 45). On the next page, titled *Outline*, the current chapter concludes with an overview of what the forthcoming chapters will bring.

1.6 Outline

In this chapter, named *1. Introduction*, the *Research problem* section contextualised the topic of walking, walkers and walking environments was made, followed by a discussion on the societal relevance as well as the scientific research gaps. Thereafter the *Purpose* was stated, leading to the formulation of the *Research questions*. Scope, methods and procedure were then detailed in the *Research design* section, followed by a definition of *Key concepts and terms* before finally arriving at this *Outline* section.

Chapter *2. Pre-study: walking in policy and planning* (p. 33) will entail a description of an interview pre-study made with professionals working in areas related to walking, with the low status of walking in policy and planning as the main theme.

In chapter *3. Literature review: walkscape configuration and walkability* (p. 43), sources on themes related to walkability will be referenced, and an array of conceptual themes on persons, walking and the surrounding environment will be presented.

In chapter *4. Methodology and context: walk-along interview study* (p. 61), the research design, methods and procedures of the empirical study will be described, in which inhabitants of the town Varberg, Sweden were interviewed on how they perceived walking in their vicinity. A contextualisation of Varberg and its architectural history will also be made.

Chapter *5. Findings: experiencing and evaluating walkscapes* (p. 111) will detail the results of the interview study, where the eight categories that emerged – Green aspects, Urban accessibility, Physical feasibility, Place attachment, Social aspects, Safety, Health and wellbeing and Accomplish task – each has one section in the chapter.

Chapter *6. Discussion, practical applications and conclusion* (p. 261) will start with a juxtaposition of key findings with the research questions. It mainly will entail interpretations of the findings, but also practical lessons for improved urban planning and design as well as research implications. At the end of the chapter, as this thesis draws to an end, the conclusions will be presented.

In Chapter *7. References* (p. 301) all sources are documented. Finally, the whole thesis ends with three *Appendices* (p. 321).

2. Pre-study: walking in policy and planning

A pre-study, i.e. an exploratory interview study, on conceptualisations of walking, walkability and walking environments from the viewpoints of different professionals was made in 2016 and has been published in an article (Höjemo & Fedrizzi, 2017). The *Aim* of the pre-study (next page), was to get a grasp on how walking and walking environments, in relation to urban planning and individual wellbeing, were perceived by professionals working in adjacent areas. On the same page (p. 34), the *Methodology* is also described, whereafter the *Delimitation* is outlined (p. 35). The pre-study was based on semi-structured sit-down interviews with four participants in Göteborg, Sweden. The academic and professional background of each participant was unique in comparison to the other interviewees. The *Findings* (p. 36) are then outlined, principally that walking has a subordinate status compared to other transport modes. Finally, the *Conclusion* (p. 41) of the pre-study is made, which can be summarised in that planning ought to consider the many distinct types, objectives and purposes of walking through a more nuanced understanding.

Aim: to explore views on walking from a policy perspective

To plan for more walkable places a nuanced and holistic understanding of walking is needed. Besides the individual perspective of mode choice, we must also understand the political and planning perspective. Planning and policies for walking are not put together in a vacuum, but in a context where car-based planning has been the norm for a long time. This can frame walking and walkability as a peripheral side note to a main perspective of motor-based transport. Planning paradigms and thought structures change slowly; even if official policies change to a more walking-friendly stance, old ways of thinking regarding walking in juxtaposition to other transport modes do not disappear overnight (Patton, 2007).

The objective of the pre-study was to, through analysing interviews with professionals in different fields, better understand walking and its context, connotations and connections concerning urban and transport policy and planning. The aim was to gain a richer contextual understanding of walking, walkability and walking environments from different perspectives, to gain a better comprehension in the process of defining interview questions for the planning of the main, walk-along study. The delimitation was walking in relation to urban and transport planning, policy and politics. Walking was here seen as a transport mode in its own right. This definition includes both walking bouts as complete journeys and walking as part of a travel chain together with other transport modes.

Methodology: interviews with professionals during 2016

The method of the pre-study was qualitative semi-structured interviewing. Interviews were conducted with four professionals from different academic and work backgrounds in Göteborg, Sweden in July and August 2016. The interviewees had academic backgrounds within the fields of behavioural science, political science, education and public health. Their work positions (in unrelated order) were researcher, public health officer, regional planner and traffic planner. The interviews were made in the workplaces of the interviewed professionals, except for one interview conducted in a public café setting.

A semi-structured interview guide was used for the interviews. They were recorded and had lengths of between approximately 60 and 90 minutes. The transcripts were anonymised through replacing each name with a code. The interview research handbook by Kvale and Brinkmann (2014) was used as a valuable guide in the full process of conducting, transcribing and analysing the interviews. The interviews were transcribed in full, in intelligent verbatim style. Relevant sections were then resumed into paragraphs. The criteria for relevance was that the transcript part at least had a loose connection to the research theme (i.e. walking, walkability, transport, place, environment, policy and/or politics were addressed or referred to).

Delimitation: walking vs. other modes in decision-making

To define the delimitations of the pre-study, the content of the transcripts were summarised and then resumed into headlines. An inductive approach was used to identify themes from the headlines. Six themes became apparent during the synthesis:

A) **Walking has a lower status than the other transport modes**

B) **How are decisions made regarding walking environments**

C) There are several types of walking, with distinct demands

D) What is needed to prioritise walking and walking-friendly urban environments

E) The benefits of walking

F) Important factors for choosing to walk or not to walk

The pre-study focused on the interviewees' perspectives of walking in relation to urban and transport planning policy and politics. The interview statements made within the two themes of A) and B) were therefore selected for analysis.

Findings: walking is construed as a sub-par transport mode and seems to have a low status in planning

Te interviews gave a portrayal of walking as a second-class citizen in comparison to other transport modes. Additionally, the interviews pointed out that walking often seems to be understood simplistically in the current planning practice.

Walking has a limited status in planning

Views on how walking and walkable environments are de-prioritised in urban planning and politics were spontaneously put forward by three out of four interviewees. The first salient aspect was that walking has a lower status than other means of transport. A second aspect was that walking conceptually is viewed in a simplistic manner in planning. In the third and last aspect, the participants argued for the need for a more broad understanding of urban and transport planning, including trans-disciplinary collaborative work uniting "hard" and "soft" planning disciplines.

Walking was seen as subordinate to other transport modes in planning and politics

The subordinate status of walking is reflected in transport planning according to the third interviewee, who stated that walking does not have any value in socio-economic calculations. S/he also exemplified on how the transport system de-prioritises walking: unevenness in road infrastructure is repaired swiftly, while unevenness in the pedestrian infrastructure (e.g. pavements) take a much longer time before being amended. The fourth interviewee expressed a similar viewpoint, stating that *"... one obstacle is that we have a car-oriented society in general. "*S/he continued saying that traffic on foot is not prioritised, e.g. the snow is taken away from the car roads long before from footpaths.

The third interviewee questioned how decision-makers – politicians and higher officials – look upon their role and what they are doing concretely. S/he said that it is hard to find those who state that they do not want a walkable society, but questions if their actions really correspond with their words.

Conceptually, walking is looked upon in a simplistic manner

The lower status of walking in comparison to other transport modes was a salient theme put forward by the first interviewee. S/he stated that walking somehow is not perceived as a transport mode among others, it just exists there as something obvious: *"In a way, walking does not become a transport mode. It just is."*. One stated reason for this was that walking does not have an artefact attached to it, in contrast to the other transport modes (biking has the bicycle as attached artefact and motor transport the car). The same participant also stated that we do not think about walking as a transport or mobility type in the same way as we do with other modes of mobility. According to him/her, plans for other types of transport are nuanced and cater for differential demands within the same transport mode. For example, the same participant stated that for bicycle transport there is a main cycle network, and also a fine mesh of smaller bike paths. However, s/he said that walking is something that we just simply do. Put in other words, walking is taken for granted without much reflection. According to the same interviewee, there exist many different kinds of walking – everything from a quick straight walk to get from A to B to a pleasurable, stroll at a leisurely pace to enjoy the surroundings. However, for planning purposes, all types of walking tend to be clumped together.

> *"Biking is mentioned more than walking. Perhaps it is connected to that you need some sort of additional thing to ride a bike and transport yourself. When you walk, you really don't need anything extra."*

The first interviewee (as quoted above) put forward a striking argument regarding how walking is treated in a simplified manner in urban and transport planning. S/he discussed how several types of walking exist – for example getting from A to B and to stroll around along the street, browsing shops and cafés. However, according to the participant, in a planning context walking was not talked about much at all, and if it is brought up it was in a simplified manner, not considering walking for transport but only walking in a leisure stroll context. The same interviewee also stated that walking often was clamped together with bicycle planning and that in this "cycling-walking" combination, walking was subordinate to

cycling rather than on an equal stance. The same participant discussed how old views regarding walking need to be questioned. S/he referred to the view within planning for commercial premises that car-drivers were the only shoppers that contribute to the economic turnover.

A trans-disciplinary perspective is needed for professionals in the transport sector

Professionals within the transport sector traditionally have had a technical perspective focused on planning for cars, according to the initial statement made of the third interviewee. Traditionally within the transport planning field, people on foot were seen as obstacles to motor traffic. S/he quoted a saying illustrating the point: *"About motoring, we know everything; about the walkers, we know that they are killed in traffic."*

S/he continued in a later part of the interview stating that planning often was made part by part, in parallel. Back in time, professionals in municipalities working with urban structure did not even meet those working with transport provisioning. S/he stated that it is not always that the needed bridging knowledge exists in practice; someone plans a new detached house area but does not consider the problem for the children to cross a transport route with heavy vehicles to get to the school.

"…because the process is arranged that way. You don't always meet, instead, there are parallel processes. This part is made by this craft, and that part by that craft."

The first interviewee (quoted above) discussed how people with different professions, such as infrastructure planners, development engineers or architects, often think in different ways and work in parallel, segregated, rather than together. S/he continued saying that of this reason the original vision of a plan can be lost in the final version. A transport engineer working to solve the bus transport situation might not consider the people on foot crossing the bus access way; that would be a question beyond the engineer's horizon.

The fourth interviewee stressed the need not only for "hard" planners such as engineers and urban planners but also for "soft" planners when planning new neighbourhoods. The latter could contribute with trans-disciplinary and public health knowledge. The first

interviewee stated that walkable urban environments are presented as visions in early stages of urban development connected with the creation of democratic meeting places, and continued saying that in later stages, however, "hard" interests for road-based infrastructure take precedence, moving the "soft" walking infrastructure to the sideline. S/he later also said that visions about a walkable city can be picturesque, but they often fade away when reaching the development stage, as different interests and trade-offs enter the scene.

The third interviewee said that young, well-educated urban and transport planners often have much knowledge about walkable environments. Nevertheless, their knowledge is not manifested in the agendas of decision-makers; other questions are more pertinent. S/he continued saying that our different professions, educations and interests make us see the world with different eyes.

Walking seems to have a low status in planning

The interviewees stated that walking has a lower status compared to other transport modes. This is an interesting point for a discussion in relation to referenced works. The example of one interviewee illustrated how walking is conceptually perceived on a lower complexity level compared to other transport modes. Lindelöw (2016) put these questions forward as he analyses the conceptual construction of walking as a transport mode within the urban transport planning sector. He argues that walking is not always treated as a transport mode, and even when that is the case walking is seen from another, more limited, perspective compared to that of the other transport modes. Lindelöw also observes that walking within the transport field sometimes is clumped together with biking in the theme of "active transport" or the walker is reduced to a "vulnerable road user" (i.e. the pedestrian is defined as a passive object while the motorist is an active subject).

The view of the interviewees and Lindelöw's view are very similar and point towards key observations. When walking is reduced to a peripheral position in transport urban planning, it means that the main effort of thought is put elsewhere, to something seen as a more complex and important problem. If this holds, the result would be urban environments that are less adapted to pedestrians. Put in other words, we risk creating less walkable

environments when the complex walking needs are simplified, reduced and put aside in the thought processes of planners and politicians.

The analysis by Tolley (2001) of UK transport policy substantiates the participants' view on how walkable environments are de-prioritised in urban planning and politics. Through discussing extracts from a UK parliament session, where the transport minister tones down the importance of walking, and juxtaposing with the few persons employed to deal with walking, he proves his point. In an analysis from Perth, Australia it is concluded that, although walkable islands exist, city planning still is driven by car-centric principles with priority for high-speed transport (Curtis, 2005). Together these sources indicate that walking is not treated on par with other transport modes in urban policy.

Statements in the interviews indicated how the mindset or world-view of the transportation planners traditionally has been geared towards car-based mobility. Patton (2007) discusses how different rationales compete with each other in the transport sector, and how the street can be perceived in different ways depending on the rationale. For the historically pre-dominant car-based rationale the street is primarily a *space*, a conduit for traffic flow, but from a pedestrian point of view, a street is fundamentally a *place*, connected with human senses. Hess (2009) unfolds a similar argument, where rationales compete, viewing streets either as *flow* or as *place*. Hess analyses policy development in Toronto, Canada, arguing that although changes are underfoot on a policy level, they have not yet permeated the existing institutional framework and logic. A symptom of this discrepancy is that conventional policy tools built on a functionalist paradigm logic such as road classification systems and zoning are still used without any major alterations. The two references show how the mindset of planning still is centred around the logic of car transport.

The interviews, as well as the referred studies, point to a need to focus more on the conceptual or structural level. We need to move up on the conceptual ladder and not being complacent with looking upon urban environments through the glasses of the pre-dominant planning paradigm. Instead, this paradigm (or discursive practice) itself needs to be critically examined. If we shove in walkability issues into a planning paradigm still very much based

on *flow* issues pertaining to car traffic rather than *place* issues of key relevance for walking, walkability issues continue to be of second-priority. Walkable environments would then continue to be found in glossy visions with smiling pedestrians on a sunny day with balloons in the sky, but continue to be of low priority in the nitty-gritty of actual planning and policy decisions still made within the existing discursive practice.

The argument for a more trans-disciplinary approach made in the interviews is also present in the research literature. Northridge & Sclar (2003) argue for a joint perspective on urban planning and public health, where different disciplines work together. King et al. (2002) outline how the theoretical perspectives of public health and urban planning can be weaved together to promote physical activity through a trans-disciplinary approach. They also note a research gap on cross-disciplinary action between these fields.

To sum up, the references collaborate on the view put forward in the interviews. Walking is conceptually still viewed in a more simplified manner compared to the view on other transport modes. Although small directional changes can be detected on a policy level, the planning paradigm is still firmly within the institutional logic of functionalist planning centred on car transport. Finally, although a cross-disciplinary approach would be beneficial to plan for walkability, this kind of collaborative work is seldom found in practice.

Conclusion: the view on walking needs to be more nuanced

The main conclusion that can be made based on this pre-study is that walking conceptually speaking does not seem to be construed as a transport mode on par with the other transport modes. This has important consequences for urban design and planning practice. If walking is not thought upon in a nuanced way, it means that the simplified conceptual level of thinking regarding walking can influence to what extent walking-friendly environments are conceived. This would mean that undifferentiated thinking results in simplistic solutions. However, walking is not simple but a complex phenomenon, related to the walker, type of walking and the walking environment. Walking deserves more nuanced thinking so that walkable environments can be created to fulfil as many types of walking desires as possible.

3. Literature review: walkscape configuration and walkability

This chapter explores research studies on how the configuration of walking environments affects the attractiveness to walk in them.

First, the *Scope* is defined (on the next page), connected to the research question (presented in *Chapter 1. Introduction*) and to the results (that will be articulated in *Chapter 5. Findings* and *Chapter 6. Discussion*). The next section is *Conceptual schemes* (p. 45), presenting key conceptualisations on walking and walkability from referenced studies. The chapter continues with *Walkscape planning and design* (p. 50) ordered by three environmental types (and their associated categories): a) Built environment (physical feasibility; urban accessibility; place attachment; pleasantness), b) Socio-physical environment (health and wellbeing; safety) and c) Green environment (green aspects). Finally, the chapter ends with a *Synthesis* (p. 60) on how the configuration of walkscapes can affect walking willingness, which summarises the conceptual schemes and categories that have been detailed in the chapter, and also addresses two additional aspects: scale level and type of walking.

3.1 Scope

The general scope of this chapter, which is based on a literature review, is to grasp how walking, walkers and walkscapes are related. This is achieved by an exploration of conceptual schemes on the connections between person, environment and the act of walking in the section named *Conceptual schemes* (p. 45).

A more specific scope is to explore how environmental aspects affect the decision to walk or not, which is addressed from the perspective of three types of environments in the section *Walkscape planning and design* (p. 50) with the following sub-sections: Built environment, Socio-physical environment and Natural environment.

On one hand, both the general and specific scope connect to the research question presented in the preceding chapter; more precisely to the experience of environmental and urban aspects and how these experiences affect the willingness to walk. On the other hand, the scope connects to the results that will be presented in chapter *5. Findings: experiencing and evaluating walkscapes* (p. 111) and chapter *6. Discussion, practical applications and conclusion* (p. 261) later in the thesis, more specifically into the eight categories that structure the findings: *Green aspects* (p. 143), *Urban accessibility* (p. 162), *Physical feasibility* (p. 181), *Place attachment* (p. 203), *Safety* (p. 216), *Social aspects* (p. 229), *Health and wellbeing* (p. 243) and *Accomplish task* (p. 250).

3.2 Conceptual schemes

In this section, key conceptual schemes from referenced works on walking and environments for walking are presented. These schemes will be discussed jointly at the beginning of the *Synthesis* section on page 60.

Quality criteria of protection, comfort and delight by Gehl

Gehl establishes three main quality criteria in his model: a) *protection* – to be safe from motor traffic, crime and against weather, pollution, noise and glare; b) *comfort/opportunities*, there should be ample room for walking, no obstacles, high-quality surfaces, accessibility and attractive streetfronts and c) *delight* which relates to a human scale of a place and to be able to enjoy a favourable climate (sun or shade) (Gehl & Gemzøe, 2004). Positive sensory experiences should be facilitated through design and detailing, good materials, and natural elements such as trees and water according to Gehl et al. (2006), and other key aspects are i) walking links to other street uses, e.g. to stay and sit (where attractive edge zones are beneficial), ii) stimulating views and good lighting (to observe your surroundings), iii) low noise levels (to be able to talk) and iv) opportunities to play and exercise. The Gehl model provides an empirically grounded view of needs for the pedestrian landscape, oriented towards providing a fine-grained view of criteria on the urban design scale of places and streetscapes, and also considers social activities.

Neighbourhood liveability according to Jacobs

Jacobs (1961) recommends mixed uses to maintain neighbourhood life during day and night, with a mix of homes, workplaces and shops where small blocks are preferable; through a fine-grained street grid, it is possible to traverse an urban area more conveniently. The same author argues that older buildings should be preserved to facilitate a variation in rents, enabling a mix in incomes of people and that uses should be concentrated to make it easy to achieve daily tasks on foot. The analysis of neighbourhood qualities from the perspective of the user, based on real-life observation, is a stronghold of Jacobs' work, as is the focus on the neighbourhood scale.

Place qualities by Project for Public Spaces

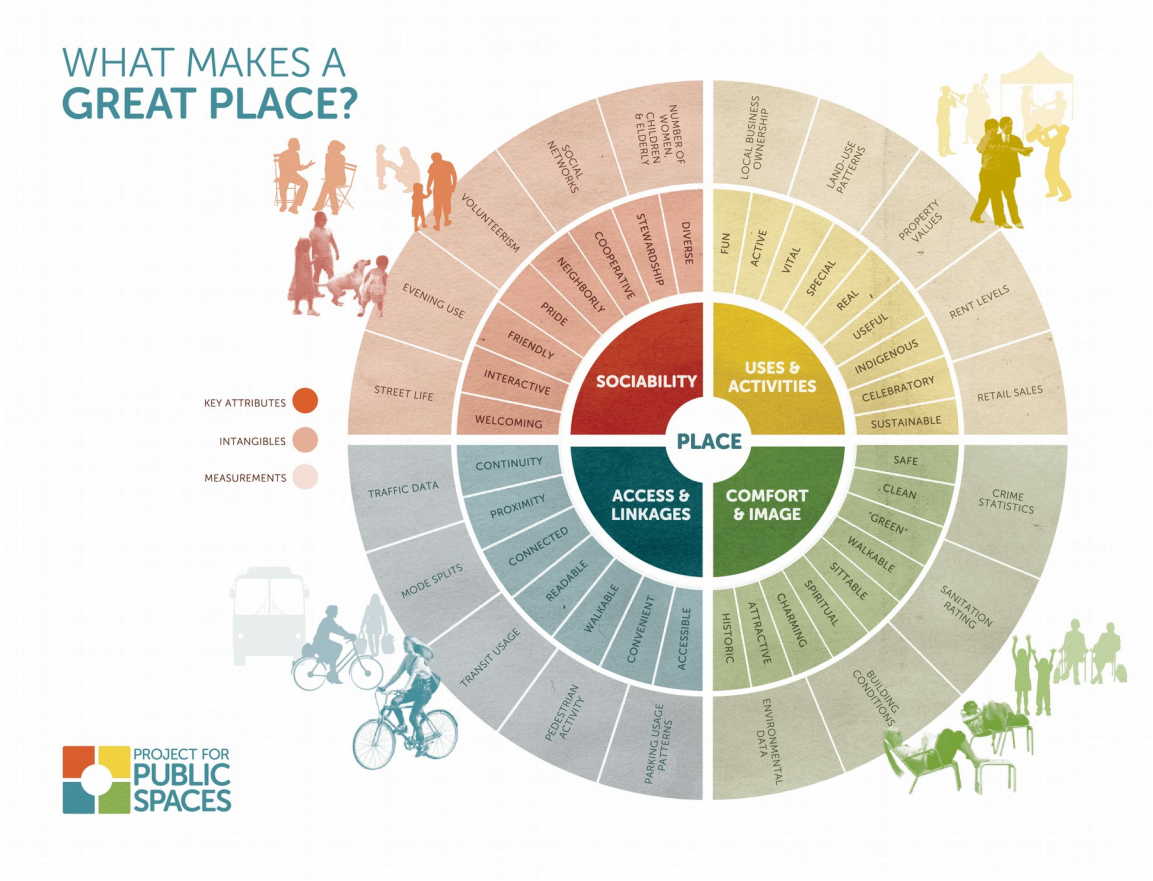

Figure 1. Model on what constitutes a great place by Project for Public Spaces.
Source: Project for Public Spaces (2009) What makes a Successful Place? https://www.pps.org/reference/grplacefeat/

Project for Public Spaces has put forward *sociability*, *uses and activities*, *comfort and image* and *access and linkage* (in Figure 1) as the main qualities of good public places, where a) *sociability* regards how friendly, welcoming and diverse a place is, b) *uses and activities* is related to the streetscape scale, with local shops and street uses (e.g. talking or sitting) as well as aggregated factors (i.e. land-use patterns), c) *comfort and image* includes if a place feels safe, clean, green, walkable, sittable, charming and free from crime and finally d) *access and linkage*, which is associated with continuity, proximity, connectivity, walkability, convenience as well as accessibility and understood on multiple scale levels (Madden & Wiley-Schwartz, 2005). The model is strong in its comprehensiveness; encompassing physical, economical and social aspects, a key point being how social aspects are critical for public places to work well.

Conceptual framework by Ewing and Handy

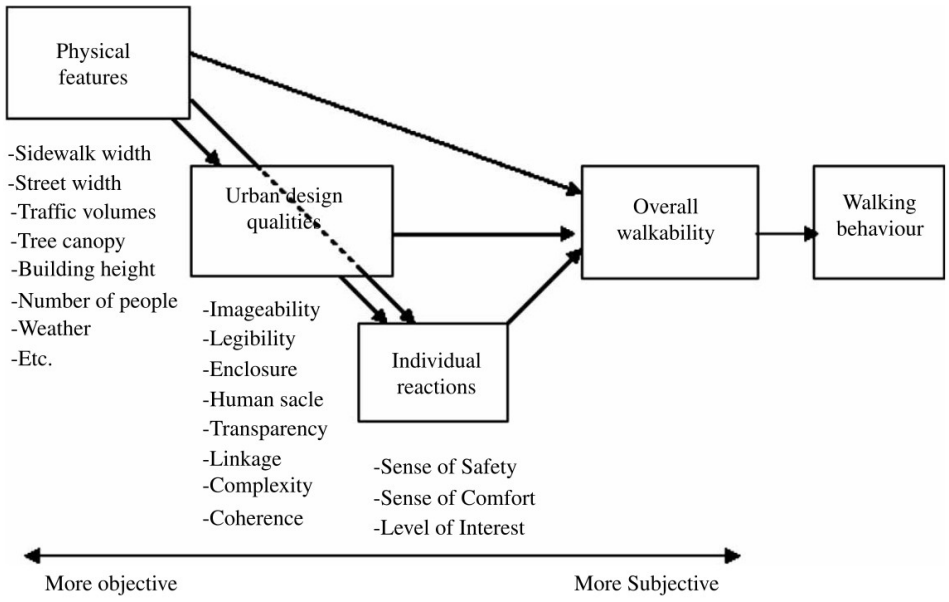

Figure 2. Conceptual framework by Ewing and Handy.
Source: Ewing, R. & Handy, S. (2009). Measuring the unmeasurable: Urban design qualities related to walkability. J. of Urban Design. 14(1), 67.

In the conceptual framework by Ewing and Handy (2009), a) physical features, b) urban design qualities and c) individual reactions influence walking (see Figure 2). In the framework, physical features is defined as everything in the physical environment, e.g. pavement width, traffic volumes and trees; urban design qualities are imageability, legibility, enclosure, human scale, transparency, linkage, complexity and coherence. *Imageability* is associated with landmarks and a sense of place. *Enclosure* is related to how street and building definition gives a feeling of being protected. *Human scale* roughly translates to three to six stories buildings. *Transparency* is the degree of perforation; related to the propensity of windows, doors and entryways along the street. *Linkage* refers to the interconnectedness between places. *Complexity* means having an optimal variation in the streetscape, e.g. with façades that vary, and the pattern of sunlight and shadows created by tree canopies. The last factor of the framework, *individual reactions*, is defined as being subjective, including *sense of safety*, *sense of comfort* and *level of interest* (Ewing & Handy, 2009). The strength of this model is its focus on physical and urban design qualities. Especially for urban design qualities, the model excels in conceptualising important aspects.

A hierarchy of walking needs by Alfonzo

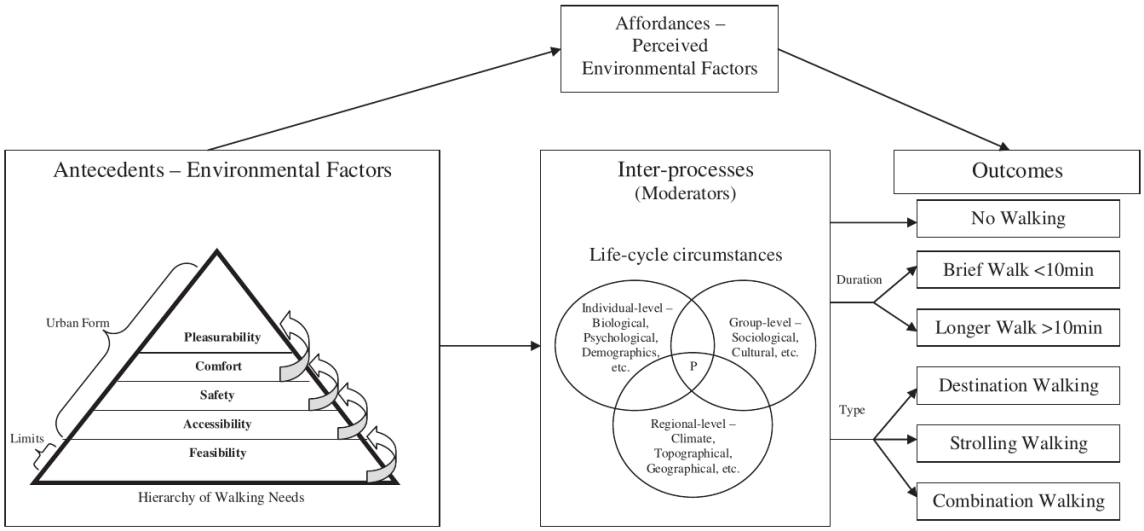

Figure 3. Hierarchy of walking needs within a social-ecological framework by Mariela Alfonzo.
Source: Alfonzo, M (2005). To walk or not to walk? The hierarchy of walking needs. Environmental and Behaviour 37(6), 820

The socio-ecological model by Alfonzo (2005) of decision-making for walking (Figure 3) is a pyramid with five levels of needs: *feasibility*, *accessibility*, *safety*, *comfort* and *pleasurability*. These needs together with life-cycle circumstances on an individual, group and regional level decide outcomes (first to walk or not, then duration and type of walk), according to the model, where a) *feasibility* is defined as the viability of walking as the transport mode for a trip including restraints such as a physical condition, time or responsibility for family members, b) *accessibility* is limited by physical and psychological barriers and c) *safety* is dependent on the presence of law-abiding citizens, absence of criminals and litter, active ground-floor usage and building upkeep. When basic needs have been fulfilled others emerge; d) *comfort*, depending on interaction with car traffic and the standard of pedestrian amenities, and e) *pleasurability* which is associated with complexity, coherence, street trees, aesthetics and active street-fronts. Alfonzo (2005) articulates a research gap regarding how comfort elements on a micro-scale (e.g. street furniture, trees or fountains) affects the propensity of walking. Model strengths include the consideration of the personal life-cycle as a component when making walking choices, the comprehensiveness of including moderators such as group and geographical region and the model's explicit focus on causality through analysing aspects in the walking decision-making process.

Street characteristics and walking needs by Mehta

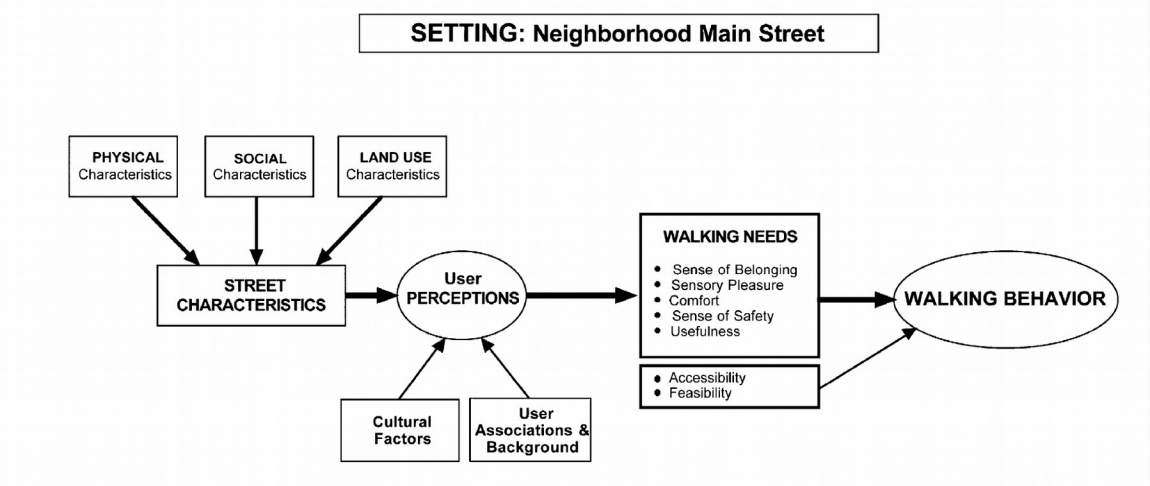

Figure 4. Conceptual framework of walking needs on Main Street by Vikas Mehta
Source: Mehta, V. (2008). Walkable streets: pedestrian behaviour, perceptions and attitudes. Journal of Urbanism. 1(3), 219.

Mehta (2008) outlines a conceptual framework of walking needs (see Figure 4), partly based on Alfonzo's model presented earlier. Mehta's framework entails a) *Physical characteristics*, e.g. wide sidewalks and street furniture; b) *Social characteristics*, which entail the presence of others and perceived and actual protection from crime and c) *Land-use characteristics*, e.g. diversity of uses. All three characteristics influence users' perceptions, that also are influenced by cultural factors and earlier experiences, according to the framework, where user perceptions in its turn influence walking needs, which are divided into two groups. The first group is *feasibility* and *accessibility*; base criteria to be fulfilled to be able to walk. The second group contains five aspects, connected to walking behaviour. *Usefulness* is to what degree an environment addresses daily needs. *Safety* includes safety from crime and traffic, while also being related to area upkeep. *Comfort* regards how the environmental configuration protects from sun, rain and wind. *Sensory pleasure* means to receive pleasant stimuli from streetscape elements such as trees, sounds, fenestration etc. Finally, the last walking need in the framework of Mehta (2008) is *Sense of belonging*, which is social in character; a triad-like relation between a person, other people and the surrounding place.

The way of treating subjective, qualitative information is a strength of Mehta's work, together with the holistic focus through the inclusion of physical, land-use and social aspects and in particular through attention to the micro-scale of places and streetscapes.

3.3 Walkscape planning and design

In this section, the relation between the environmental configuration and walking is discussed by using seven categories, of which Physical feasibility, Urban accessibility, Place attachment and Pleasantness are discussed in the *Built environment* section (below), while Health and wellbeing and Safety structure the *Socio-physical environment* section (page 54). Finally, the section *Green environment* (p. 58) addresses Green aspects.

Built environment

Physical feasibility

Physical feasibility (or physical comfort) relates to the physical standard and configuration of the walking environment on a streetscape scale. To improve physical comfort for pedestrians, pavement improvement together with the creation of new zebra crossings is an effective measure, according to a meta-study by Smith et al. (2017). Physical comfort can be described via service levels of what should be offered. Paths should be without hindrances, with stopping places provided for rest, and protection should be offered from noise, air pollution and extreme weather (e.g. through shade by trees) (S. Sarkar, 2003). In a qualitative walk-along study by Van Cauwenberg et al. (2016), elderly preferred pavements that were a) even, b) well-maintained, c) with good street lighting, d) had a useful width for walking, e) separated (e.g. by greenery) from the carriageway and f) with zebra crossings with traffic lights, but disliked pavements i) without dropped kerbs or with ii) cracks, iii) unevenness, iv) puddles of rain and v) steep slopes (due to the fall hazard when snowing or raining). Similar findings have been shown elsewhere. Garrard (2013) shows that badly maintained walking paths and pavements and insufficient lighting deterred from walking. Participants in a study using GPS data to measure walking by Broach and Dill (2015) preferred flat walkways and traffic signals in major crossings. Zebra crossings were positively associated with the attractiveness of a street section in the study by Borst et al. (2008).

Urban accessibility

Urban accessibility operates on the neighbourhood as well as the area/town scale, including access to parks, shops, public transport stops and to the city centre (Borst et al., 2008). Feasibility (Lindelöw et al., 2014) and urban form (Boodoo, 2010) are related concepts.

One of the three 'D':s of walkability according to Cervero and Kockelman (1997) is diversity, in the sense of a variety of uses (a fine-grained mix of shops, homes, workplaces etc. in an area); it is almost synonymous to the term land-use mix. Diversity needs to be studied on different scale levels; a micro-scale diversity does not necessarily mean that there is diversity on a meso- or macro-scale (Sardari Sayyar & Marcus, 2011). Studies from all around the world show that diversity (land use mix) is positively correlated with walking and walkability, from Porto Alegre, Brazil (Larrañaga Uriarte, 2012) to USA (Saelens et al., 2003), Sweden (Choi & Sardari Sayyar, 2012), Hong Kong (Cerin et al., 2007) and Australia (Christian et al., 2011).

Another 'D' of Cervero and Kockelman (1997) is density; higher density affects walking for transport positively. Population density can indirectly affect accessibility to destinations, as higher density makes it possible for more shops to establish due to more customers nearby, as well as making it feasible to establish public transport stops. In a US meta-study, a high population density was consistently positively associated with walking for transportation (Brownson et al., 2009). However, studies on density mainly study walking for transport. For walking for leisure a too high density can conflict with other needs, such as the presence of parks and spacious streetscapes of a suitable, lower scale (Fitzsimons D'Arcy, 2013). Another study has demonstrated that the density of dwellings was negatively associated with perceived walkability (Borst et al., 2008).

Imageability also helps to make places legible; resulting in a street and place structure that is easy to remember because of clear landmarks, routes and nodes (Lynch, 1984). Imageability is closely related to other urban design aspects such as legibility, enclosure, human scale, transparency, linkage, complexity and coherence (Ewing & Handy, 2009). When a street and the houses are structurally coherent and the street mesh is continuous and integrated, legibility is increased (Klasander, 2003). Coherence in a walkability context

means that places are configured so that they feel like a unified walkscape. In a study by (Tribby et al., 2016) coherence was measured through a composite index of: a) spatial autocorrelation (i.e. similarity) between street sections in an "activity space" (i.e. places within walking distance) on the aspects of attractiveness, crime safety, density, diverse destinations, pedestrian access and traffic safety; b) deviation in walkability level between adjacent town areas and c) an overall walkability index.

Yet another aspect of accessibility is connectivity, which is inversely related to block size and positively related to the number of street crossings per area unit, i.e. intersection density (Southworth, 2005). Precisely intersection density is positively related to physical activity on a moderately vigorous level (Frank et al., 2005). Connectivity on a neighbourhood scale is related to the space syntax term *integration*, i.e. how well-connected a street is within the street network. Axial lines (sightlines) and place attraction can be analysed together in a place syntax model, to correspond with how pedestrian route choices are made in real life (Ståhle, 2008). Having a straightforward and direct path by foot to a destination lowered the mental effort and therefore increased the attractiveness of that walking route choice (Ståhle, 2008). Another study corroborated this finding; a limited number of turns was found to be a positive aspect of walking route attractiveness (Broach & Dill, 2015).

Place attachment

Place attachment can be described as a positive mediator in the relation between the neighbourhood and the person. Sense of place is a similar concept, describing the sense of belonging and identification between users and a place (Werner et al., 2002). Sense of place could be a possible intermediary between a walkable environment and quality of life of its users, making them identify with their urban places (Jaśkiewicz & Besta, 2014). Perceived neighbourhood qualities (such as building aesthetics, security and sociability) influenced the emotional relationship (place attachment; stimulating vs. boring; relaxing vs. stress-inducing) in a study and, finally, this emotional relationship affected which streets a person chose to walk on, the number of different destinations they visited as well as the duration of their walking trips in a study by Ferreira et al. (2016).

The third 'D' of Cervero & Kockelman (1997) is design; how the streetscapes are configured to create walkable environments. Mehta (2007) conducted an empirical study in Boston, US, investigating street characteristics that encouraged people to walk, stay and linger; when the streetscape was adapted for walking, e.g. with outdoor cafés and permeable storefronts, the number of pedestrians and their time of stay increased and walkable neighbourhoods could thus be linked with social street use. The study also showed that variety and standard were important to attract pedestrians; the factor analysis indicated a) the number of community places, b) personalization and signs on the street fronts, c) variety of businesses, d) artefacts and furniture on the pavement and e) commercial seating as the most highly valued characteristics (Mehta, 2007). All these aspects contribute to the unique character of a place, partly physical and partly social; the sense of place.

Pleasantness

Pleasantness can be defined as the aesthetic appeal of a place; having pleasant appealing or places increased walking attractiveness (Van Cauwenberg et al., 2012). Two (of in total three) principal aspects influencing perceived attractiveness of walking were the *scenic value* of the walking surroundings and the *tidiness* (i.e. absence of litter) in a study by (Borst et al., 2008). Similarly, a visually appealing environment was one of the three main sets of explaining variables for walking attractiveness in another study (Guinn & Stangl, 2014). Complexity and aesthetic quality, tidiness and upkeep as well as beautifully curated greenery were examples of related important urban design qualities according to (Maria Johansson et al., 2016).

Socio-physical environment

For a socio-spatial development that is positive for quality of life, public spaces should, among others aspects, afford a) *social aspects,* e.g. to communicate with neighbours and participate in community activities; b) *safety* – factual and perceived – against robberies and assaults and c) *health and wellbeing* via restoration from stress through noise protection, access to daylight and recreation facilities for play and sports (Piccinini, 2007). Spatially, these aspects are connected to the design and aesthetic appeal of streets, façades, squares and parks (Piccinini, 2007).

Social aspects

Social aspects that according to some studies increase the willingness to walk in a place include sociability (Ferreira et al., 2016), the presence of other people (Borst et al., 2008) and places for social interaction (Van Cauwenberg et al., 2012). If walking has positive social effects or not is however not clear from research results; they range from positive to negative connections or even no demonstrated connection at all (Du Toit et al., 2007; Jaśkiewicz & Besta, 2014; Jun & Hur, 2015; Van Dyck et al., 2011). The possible connection seems to be associated with the geographical and socioeconomic context in question. In many countries, walkable areas are found in inner cities, that often are deprived and have high crime levels. This co-linearity could explain negative relations found between walkability and social 'state' (Jun & Hur, 2015), that walkability was negatively associated with neighbourhood satisfaction, with ugliness, pollution, crime and absence of safety as mediators (Van Dyck et al., 2011) or that no significant link could be found between walkability and social capital (Hanibuchi et al., 2012). Another negative connection is that refurbishing urban areas for better walkability can be problematic from a social justice perspective. Urban renewal processes can lead to gentrification, where people with low incomes often have to move out (Machado & Piccinini, 2017).

However, some studies show a positive association between walkability and social engagement. In an Irish study, a strong and statistically significant connection was found between neighbourhood walkability and the odds of knowing neighbours; other statistically

significant connections were to political participation, trust and social engagement (Leyden, 2003). In a Polish qualitative study on walkability and life quality, the authors concluded that walkable neighbourhoods foster a closer relationship and attachment between the individual and the city, which in its turn affects the quality of life positively (Jaśkiewicz & Besta, 2014). When comparing two similar neighbourhoods in a US city that differed on their levels of walkability those that lived in the area with high walkability scored higher on all social capital metrics (such as social trust, local friends etc.) (Rogers et al., 2011). Another US study showed that sense of community was associated with walking for leisure but not with walking for transport (Wood et al., 2010). Supplementing this view, it was argued for the need to incorporate qualities of the urban environment relevant to walking for recreational purposes in the walkability discussion in an Australian study, that showed only a modest relationship between social cohesion and traditional walkability indices (which are focused on walking for transport but not on walking for leisure) (Du Toit et al., 2007).

To summarise, results vary a lot regarding walkability and social aspects, ranging from positive, negative or no connection whatsoever. Several studies indicate that intermediary factors can be involved which are not included in the definition of walkability indices, such as socioeconomic status, crime level, pollution and aesthetic factors of a neighbourhood.

Safety

Safety is divided in safety from crime (Ferreira et al., 2016; Van Cauwenberg et al., 2012) and safety from traffic, e.g. from car drivers (Garrard, 2013). It can be further subdivided based on perceived safety and statistic security (i.e. crime rate). Walking for transport or leisure are other types of analysis categories that can be used. Although it perhaps could seem evident that higher safety would result in more walking, research as a whole has not been able to corroborate this connection. Regarding safety from crime, many studies could not find any significant link to walking frequency (Jack & McCormack, 2014; Saelens & Handy, 2008; Sugiyama et al., 2008); for example, no positive associations between safety conditions and walking frequency were found in a study made in Curitiba, Recife and Vitória in Brazil (Gomes et al., 2011). However, according to Barros et al. (2015) safety contributes significantly for the choice of walking route, which was also a finding of a qualitative

walk-along interview study made by Van Cauwenberg et al. (2012). A mapping review concluded that certain environmental features are effective for improving safety, such as improved street lighting and in certain contexts surveillance cameras, but that the links between crime, perceived safety, the environment and wellbeing are complex and difficult to entangle (Lorenc et al., 2012).

Safety from traffic was significantly associated with walking for transport in a Canadian study (Jack & McCormack, 2014) but not at all associated to the walking frequency in a Brazilian study (Gomes et al., 2011). Reckless car drivers that did not stop to allow pedestrians to pass the street was negative for the elderly participants of yet another study, but also cyclists presented a problem, as they often cycled on the pavements and thereby disturbed the pedestrians (Garrard, 2013). For physical attributes in the socio-physical environment related to traffic safety, the odds for people walking more than doubled with well-maintained footpaths, while traffic calming features also had a substantial impact, according to a meta-study (Y. Wang et al., 2016). Another meta-analysis study also showed that traffic calming features, such as raised platforms and zebra crossings, were effective for increased physical activity, together with the implementation of safe walking areas, parking bays that buffer walkers from traffic and temporary street closures (Smith et al., 2017).

The connections between safety from crime, urban design and walking are unclear. For safety from traffic, research reports show that traffic calming measures improve walkability.

Health and wellbeing

Health and wellbeing is connected to nature and also to opportunities for exercise (Guinn & Stangl, 2014). Walking attractiveness and health is connected through complex mechanisms that can affect us in many different ways: chemically (such as car exhausts), behaviourally (e.g. having a park nearby can incentivise walking), as well as psychosocially (e.g. a street with limited pedestrian space or a lot of car traffic can result in stress) (Gullón & Lovasi, 2018). In unfavourable environments and circumstances walking thus can bring negative health effects, due to risks of car collisions, fall accidents and air pollution among other factors (Gatrell, 2013). There are however many positive health benefits of walking. It is

established that walking brings physical health improvements, such as better heart performance (Parkkari et al., 2000), lower prevalence of diabetes (I.-M. Lee & Buchner, 2008) as well as lower overall mortality risk (Hamer & Chida, 2008). In comparison, the evidence regarding the relation between walking and mental health is somewhat less unequivocal (Atkinson & Weigand, 2008). However, studies have shown that walking improves mood and reduces stress, tension and anxiety (Murphy et al., 2002) and lowers levels of depression (Penedo & Dahn, 2005). Other studies have demonstrated that green factors seem to be an important intermediary between walking and mental health (Marcus Johansson et al., 2011; Sugiyama et al., 2008).

How should then neighbourhoods be configured to promote psychological wellbeing through walking? In an Australian study by Leslie and Cerin (2008), for *objectively measured mental health* three neighbourhood satisfaction factors were found to be independent predictors: a) Safety and walkability and b) Social network (both positive associations) together with c) Traffic and noise *(*negative association); the most important *perceived mental health factors* were i) aesthetics and greenery, ii) crime, iii) traffic volume and iv) safety, with other perceived factors being v) land use mix, vi) walking infrastructure, vii) traffic safety and viii) street connectivity. Participants associated between neighbourhood factors, grouped them in clusters and then rated each factor for its importance for mental well-being in a Canadian study by (O'Campo et al., 2009), where *Walkable areas* was found to be strongly related to mental wellbeing; the two closest factors in the same cluster that also received a high rating were *gardens* and *green areas*, suggesting that the three terms were associated.

Regarding physical health, mono-functional low-density land use and disintegrated street networks were negatively associated with walking for transport, and that these factors consecutively affect health by influencing physical activity, traffic pollutant emissions and finally obesity, according to a meta-review (Frank et al., 2006). Another meta-study showed similar results: land use mix and composite neighbourhood walkability indices were consistently positively associated with physical activity (McCormack & Shiell, 2011).

In synthesis, walking improves physical health and mental wellbeing, and it is possible to increase the walkability of neighbourhoods through urban design measures.

Green environment

Green aspects includes greenery on the streetscape scale such as trees and front gardens (Borst et al., 2008), that should be well-maintained to be attractive (Maria Johansson et al., 2016), parks on a neighbourhood scale (Borst et al., 2008) and nature on the district scale (e.g. forests). Which conditions then influence our willingness to walk in green environments on these different scale levels? Naturally, *if* and to *what extent* nature and greenery is present is a base criterion. On a streetscape scale, elderly people in a Dutch study found routes with trees and front gardens attractive; perceiving those green elements made them feel more inclined to walk (Borst et al., 2008). Trees seem to be a key element on a streetscape level; the concentration (i.e. density) of trees on streets was positively and independently associated with walking propensity (C. Sarkar et al., 2015). The presence of trees and grass can also increase walking attractiveness from a social point of view, contributing to create a sense of community and make it easier for social contacts to be established (Sullivan et al., 2004).

When we are in a natural environment we can experience the surroundings in a relaxed way, without focused attention (Kaplan, 1987). Especially savannah-like nature (with visual deepness and moderate complexity) can bring us restoration from stress, probably as we are biologically adapted to respond restoratively to this type of environment (Ulrich et al., 1991). Walking in nature entails direct contact between our senses and the surroundings, without placing social demands, offering mental restoration (Grahn & Stigsdotter, 2010).

The positive effects of being in a green environment on health and wellbeing are well established. Green factors seem to be an important intermediary between walking and mental health (Marcus Johansson et al., 2011; Sugiyama et al., 2008). In particular, our stress levels are reduced and we can recover from mental fatigue (Grahn & Stigsdotter, 2010). Inhabitants that perceived their neighbourhood as green had 60 per cent higher mental well-being and 37 per cent better physical health in an Australian study (Sugiyama et al., 2008). The *distance* to green areas is a key factor for how often people walk there. Having a park on a short walking distance from home was crucial for people to walk frequently in a green context, according to a Swedish study (Grahn & Stigsdotter, 2010). Additionally, the *size* of the green area is important. Having a park that is both big and situated nearby was

very attractive, leading to daily visits in an interview-based study (Giles-Corti et al., 2005). If the *quality* of the green space is high we may be prepared to walk somewhat longer to reach it; those adults in Australia that had large attractive open green spaces less than 1,6 km from home were more likely to walk more than 2½ hours per week (Sugiyama et al., 2010).

How green space is *designed* is another factor. The most prominent elements identified for the physical configuration of a park were (in order of importance): shade along paths, irrigated lawns, the presence of walking paths, sports facilities and having an adjacent ocean, river or other water feature (Giles-Corti et al., 2005). Healing gardens are an example of specialised green spaces which support recovery in a hospital context. They should be designed for people with different health and mobility status, e.g. with a deck for contemplation, horticulture therapy and an outdoor gym (Bagnati, 2019). Schoolyards should be extensive but subdivided in smaller places for different activities (Fedrizzi, 2006). On a conceptual level, eight key terms were identified that mapped desires of what green areas (e.g. parks) should offer: *serene* (peacefulness), *wild* (diversity in animal and plant species), *lush*, *spacious*, *the common* (a public place), *the pleasure garden* (an enclosed place) and finally *festive and culture* (a social place) (Skärbäck & Grahn, 2015).

Natural environments also consist of bluespaces: rivers, lakes, and sea. A significant positive association between frequency of bluespace use, perceived walking proximity to blue space and mental health was found in one study (Völker et al., 2018). However, a systematic review only found limited evidence for a causal relationship between blue and green spaces and mental health, also indicating a lack of research in the area (Gascon et al., 2015).

It can be concluded that more research is needed on the localisation, design and planning of green spaces in general and blue spaces in particular vis-à-vis the built environment.

3.4 Synthesis

The conceptual schemes provided an overall perspective of the attractiveness of walkscapes. A place should provide sociability, uses & activities, access & linkage and comfort & image to be attractive (Madden & Wiley-Schwartz, 2005). Gehl & Gemzøe (2004) put forward protection, comfort and delight as key aspects on a streetscape scale, while on a neighbourhood scale level mixed uses and diversity are important according to Jacobs (1961). Physical features, urban design qualities and individual reactions influence overall walkability and walking behaviour (Ewing & Handy, 2009). From the perspective of human needs vis-à-vis the environment, Alfonzo (2005) constructs a pyramid of needs with feasibility at the base, moving up via accessibility, safety and comfort to pleasurability. How environments affect walking behaviour was then seen from the perspective of the built, socio-physical and green environment, but other dimensions can further enrich understanding. Firstly, the scale level is important; where the detailed zoom levels connect to our direct, qualitative experience. At the *streetscape scale*, we experience the places we walk through, including aspects of greenery, pleasantness and safety. On the intermediate *neighbourhood scale*, accessibility and proximity to daily destinations are important. Finally, on the *area/town scale*, quantitative factors as density and land-use mix become salient. Additionally, environments can be analysed from the perspectives of *walking for transport* and *walking for leisure*. For walking for transport directness and accessibility to destinations are important, or phrased otherwise density, diversity and connectivity (Saelens et al., 2003). Other, more qualitative aspects matter for leisure walking, such as greenery, safety and aesthetics (Leslie & Cerin, 2008). When walking for transport, priorities and decision-making processes are different compared to when walking for leisure (Jack & McCormack, 2014).

The topic of walking, walkability and walkscapes is complex, encompassing aspects that transcend scientific areas and span over multiple scale levels. Therefore, a holistic understanding seems necessary to grasp the overall picture and complexity of the topic. In practice, this means that even if research on walking and walkscapes is to be made in a single discipline, such as architecture, a trans-disciplinary understanding is first needed as a base.

4. Methodology and context: walk-along interview study

This chapter outlines the methodology of the empirical research study, which is based on the method of walk-along interviewing (interviews made while the researcher and participant walk together). It also provides a contextual introduction to the town of Varberg, Sweden where all interviews were made.

Firstly, the *Preamble* (next page) outlines the methodology of the empirical study and how the research aim is operationalised. Secondly, the practical *Research design* (p. 65) is detailed, that includes qualitative content analysis and walk-along interviewing. Thirdly, the *Pilot study to test interview format* (p. 68) is related. Fourthly, the section *Main study context: Varberg* (p. 72) provides orientation about the town where the interviews took place, including its architectural history and current state. Then the selection and recruitment of the *Participants* (p. 90) are described followed by a specification of the questions in the *Interview guide* (p. 96), how the interview was technically configured in the section *Procedure* (p. 101) and then how the *Data analysis* (p. 102) was performed. Finally, this chapter ends with sections on *Ethical considerations* (p. 107) and *Trustworthiness* (p. 109).

4.1 Preamble

In this preamble an overview of the methodology used for the main walk-along interview study will be presented, followed by an explanation on how the research aim was synthesised into the two question domains, that later will be the basis for the interview questions.

Overview of methodology

In this qualitative study, 17 walk-along interviews were made with 18 residents in Varberg, Sweden during the second half of 2018. A qualitative research approach within the framework of environmental psychology was chosen as the experiences needed to be understood in a social and environmental context. Walk-along interviewing was used as the interview method, which means interviewing is done simultaneously with walking.

Walk-along interviewing was used to be able to comprehend how people experience walking in an urban environment; the method was found suitable due to its characteristic of being an interview both *in* and *about* an urban environment. The interviews aimed to explore how the participants experienced their urban environment when walking. The participants chose the walking route themselves, on the condition that it should be in an area of their town (Varberg) that they commonly walk in. During the walk-along interview, participants commented on their preferences and needs on walking environments in general and about the walkscape we pass through. The interviews were performed in the second half of 2018, and the average interview time was 48 minutes.

The interviews were audio-recorded, then anonymised and transcribed in full in intelligent verbatim transcription. Additionally, the walking routes of the interviews were recorded with a GPS app. After the transcription of the interviews, the answers to the obligatory introductory interview questions were coded in detail. The codes were then used to form the categories. Each category was matched with a colour, that was used to mark sections of the interview transcripts by hand. The manual reading was complemented by a computer keyword search, to find additional relevant places in the interviews.

Question domains structure interview questions

Central research question

The central research question was defined in section *1.3 Research questions* (page 24) as:

> **How do inhabitants experience environmental and urban aspects in the walkscapes of their neighbourhood in Varberg, Sweden, and how do these experiences affect their walking choices?**

Question domains

Two of the research sub-questions were used as question domains:

1. **How do the inhabitants experience walking in their neighbourhood?**
2. **How do these experiences influence their walking choices?**

The two question domains facilitated a structure for the questions in the interview guide. The first question domain concentrates on the experience of walking, and the second question domain focuses on how experiences affect the propensity to walk.

The interview guide will be presented in detail in section *4.6 Interview guide* on page 96 later in this chapter.

Time and place of study

Interviews were performed during the second half of 2018

The empirical study with walk-along interviews took place during the second half of 2018 in Varberg, Sweden. During this period, all interviews were also fully transcribed in intelligent verbatim style. 17 interviews were made, the first interview was made in the first half of August 2018 and the last one at the beginning of December 2018.

Varberg as the location of the empirical research study

The spatial delimitation of the research study was the town of Varberg in western Sweden, delimited to the urban area, consisting of the town centre and its adjacent areas. Varberg was chosen because of its size, being small enough to have varied settlement and building topologies within short distances, which made it possible to draw on similarities and differences in walking discourses within the same town. On the other hand, Varberg had an adequate size to provide urbanity, through a defined town core with high pedestrian usage.

Varberg will be thoroughly described in section *4.4 Main study context: Varberg* (page 72). In the section on Research design, which starts on the next page, the theoretical and methodical choices of this study will be motivated.

4.2 Research design

In this section, the practical research approach is detailed. The choice of qualitative content analysis as the analysis method is motivated below. On the next two pages, the walk-along interviewing method is introduced and the choice of this interview method is motivated.

Qualitative content analysis as the analysis method

To be able to analyse the interviews, they were first transcribed in intelligent verbatim style. Conventional qualitative content analysis was chosen as the analysis method. Using the guidelines by Graneheim and Lundman (2004), the whole text was read multiple times and sentences relevant for the research questions were selected (keeping the surrounding text to maintain context). Codes were formed to condense the meaning of the text, that were then organised into mutually exclusive categories, i.e. one code could only belong to one category (Graneheim & Lundman, 2004). Through qualitative content analysis, during the process of *condensation*, the text was concentrated while keeping its essential meaning, into a shorter *meaning unit* and then a *code* was defined as a description of the meaning unit, where each code was sorted into one *category* (Erlingsson & Brysiewicz, 2017). In each of the categories, specific codes were arranged together that described similar aspects of the interview material, and the categories responded to questions on '*who?*', '*what?*', '*when?*' or '*where?*' (Erlingsson & Brysiewicz, 2017).

This study aimed to find out which aspects or categories were important for people in their walking experiences and choices. The conventional qualitative content analysis method was found suitable as its objective is precisely to synthesise categories from discourses. Secondly, it is a hands-on and practical approach which made it possible to work close to the transcribed interview text. Thirdly, the conventional qualitative content analysis method allowed categories to be defined dynamically while the interview transcripts were interpreted; the categories did not need to be established beforehand.

Walk-along interviewing as a research method

An in-action moving-in-place kind of interview

A walk-along interview means that the researcher and the participant(s) walk together along a route and talk about the topics the researcher wants to explore. The interview is simultaneously centred on the *person* and the *environment*, as the experience and actions of the participant *in relation to* the physical, and the social, context is of interest. The key characteristic and advantage of walk-along interviewing is that it allows to study the participants' spatial interaction with the environment in the field, and *at the same time* access their experiences and interpretations (Kusenbach, 2003). The walk-along interview is *moving-in-place* and therefore suitable for exploring experiences with connotations to the surroundings, i.e. experience connected to place. Walk-along interviews place events, stories and experiences in a *spatial context*, as the participants' experiences of the walking environment influence what they talk about (Clark & Emmel, 2010). According to Carpiano (2009), walk-along interviewing is useful for understanding how people experience the places they walk through simultaneously as they walk there, entailing an *interview in action* as the walked course unfolds in tandem with the talked discourse. As the researcher and as the participant walks through the same "action space" (i.e. the places traversed during the interview) the interviewee's experience can be grasped in action, situated in a place context and the relation between person and environment can be better understood (Carpiano, 2009).

Walk-along interviews are suited for exploring spatial contexts

Walk-along interviews are suitable for unveiling layers of perceptions of the socio-physical environment (Kusenbach, 2003). In a comparative study, the walk-along interviews focused on urban form in more than 50 per cent of the stories, compared with only 20 per cent in the sedentary interviews, and the stories were also organised more spatially (rather than temporally) (Jones et al., 2008).

The interview form made participants open up

The traditional sit-down interview situation is static and does not provide an opportunity for context-sensitive reactions (Kusenbach, 2003). In comparison, walk-along interviews can be more dynamic, and participants may feel more at ease. In a sexual health study at college campuses in the USA, it was found that walk-along interviewing made people open up more easily, compared to the more formal sitting interview (Garcia et al., 2012). Another study argued that the informal interview setting led to a more equal relationship between researcher and participant and showed that the experience of traversing places elicited the participants' memories of important events in their life (Cameron et al., 2014).

Motivation for method choice

There were several reasons for choosing walk-along interviewing. As this PhD thesis is related to how people experience places, walk-along interviews were very suitable due to their characteristic of being both *with people* and *in place* simultaneously. This spatial contextualisation is very important for research within the urban and architectural field. Through exploring a series of places together with a participant it was easier to comprehend their understandings of places. The format of walking whilst talking also created a more informal atmosphere which helped the conversation to become more free-flowing compared to a traditional sit-down interview. The discourse of the participant also became connected to the experience of the environment we passed through. To analyse this connection, the interview audio recording could be examined in parallel with the GPS recording of the path traversed. This meant that the participants' statements could be compared to photos of precisely the place where the statement was uttered, as the places were photographed after the interviews, retracing the steps of the interview trajectories.

In the next section (which starts on the next page) the pilot walk-along interview study will be detailed, whose purpose was to test and refine the interview format towards use in the main study (which will be introduced starting with the section *4.5 Participants* (on page 90).

4.3 Pilot study to test interview format

In the pilot study, the walk-along interviewing format and methodology were tested to improve the interview guide questions and streamline the configuration of the technical equipment in preparation for the main walk-along study. Additionally, a suitable workflow was sought as well as more experience in walk-along interviewing.

Aim: to get practice and test interview format

The pilot interviews were made with relatives and friends before the main walk-along study. The aim was to gain experience in conducting walk-along interviews and to improve the interview guide topics structure and to achieve a technical configuration that works. Another important objective was to ask the participants of the pilot study how they evaluated the information they got in oral and textual form.

Additionally, an aim was to evaluate which equipment should be used. As has been reported by other researchers, GPS receivers can be used to record the movements during interviews to open up for a geographically situated analysis (Jones et al., 2008). Another possible technical accessory is a disposable camera, which was offered each participant to document salient features of the walking route in another study by Degen and Rose (2012). Yet another variation is to bring a video camera, but one study showed that the use of video-recording was challenging, with a multitude of problems, such as shaky video, darkness and depleting batteries (Cameron et al., 2014). In the end, it was decided to use voice and GPS recording only, with photos taken at a separate occasion afterwards (retracing the steps of the interview trajectory) to provide for a smooth interview experience without technology being a barrier to conversation.

Small tests of transcriptions were made, to get a grasp of which topics that occurred, and how they are related to the physical surroundings (for example lighting) and over-arching concepts (e.g. perceived safety).

Practical problems and their solutions

It was valuable to get practical experience from conducting walk-along interviews. Several problems occurred and could be solved step-by-step before the actual main walk-along study commenced.

Checklist needed to implement workflow

One important lesson was that it was tricky to handle all the technical equipment. As there were many steps involved it became an obstacle that affected the interview flow severely in the beginning. To solve this problem, the step-by-step handling had to be streamlined, so that all steps that were possible to prepare before the interview started were made beforehand. In this manner, it was possible to reduce the number of steps required to handle during the actual interview meeting.

The most important solution to the problem was however to implement two checklists. Firstly, a detailed preparation checklist to use before and after the interview. Secondly, a very clear checklist that was succinct in A5 format to use at the actual walk-along interview. The succinctness and clear phrasing of the checklist, as well as a clear separation with headlines, were important for making it easy to use. This way, it was possible to make all steps during the interview with just a glance on the checklist, that could be held unobtrusively in the hand. After practising a few times, it was possible to accomplish the tasks in the list and at the same time maintain a natural conversation flow during the interview. The content of the two checklists is described in a combined manner thoroughly in *Appendix C. Detailed procedure guide* on page 330.

Technical challenges until finding a working configuration

The first technical test setup was made with a mobile app for recording via Bluetooth and a wireless mic. However, this setup did not work well. Besides the Bluetooth app, also the GPS recording app needed to record audio when voice annotations were made in the beginning to facilitate synchronisation between the voice track and the GPS track. This led to one of the mobile apps crashing. In another case, an app silently stopped recording, without any warning. Another technical problem was noise from heavy wind and low recording volume

that made it impossible to detect the voice. Similar technical problems have been reported in the literature, for example by Cameron et al. (2014).

To resolve this problem another technical configuration had to be found. After extensive Internet research, the conclusion was made that it was more stable to use a separate voice recorder. No voice recorder that had built-in GPS recording could be found, so a normal portable voice recorder was bought, and the GPS route was instead recorded via a mobile app. To manually synchronise audio and GPS recording, a voice annotation had to be made in the GPS mobile app, which was recorded simultaneously by the portable voice recorder. The GPS and voice recordings were then successfully combined in the JOSM map program. By using a separate device for voice recording, there were no problems with crashes in the GPS mobile app. Another type of Bluetooth microphone was also bought, selecting a pair of Bluetooth microphone and receiver that worked in windy conditions according to several reviews. As a backup recording source a wired microphone that also was specified to withstand wind was also ordered, to be placed on my jacket. In practice, this new combination worked very well. The only caveat was that the Bluetooth microphone and receiver consumes a lot of energy, so it was needed to use Lithium batteries and exchange them after each interview to be sure to have sufficient battery energy for the microphones.

Test of interview format

To let the participant choose path proved to be successful

The path can be controlled by the participant or decided by the researcher in beforehand (Carpiano, 2009; Jones et al., 2008). The former choice is recommended, as a form of 'natural' go-alongs, were informants walk in their familiar, everyday environment (Kusenbach, 2003). For this study, it was decided to let the participant chose the path, and this proved to be successful in practice, as the participants had quite a lot to comment on along the path of their choosing that we walked.

The interview guide worked well

One positive aspect of the preliminary tests was that the interview guide (which contained the interview questions) worked well. It was possible to delve quickly into interesting topics, such as safety and security. The walk-along interview format was also proven valuable, as the reference to what was observed and experienced during the walk made natural connections to important topics – first on a more hands-on practical plane (e.g. illumination) and then to a more conceptual level (e.g. perceived safety). In one test interview, thanks to the rainy weather, observations could be made about the lack of drainage. According to my evaluation, these themes would not be possible to enter into with the same profound connection to the local walking environment if the interviews had been made in a traditional sit-down format. The same observation has been made on numerous occasions in the referenced scientific literature about walk-along interviews, e.g. by Carpiano (2009), Clark and Emmel (2010) and Kusenbach (2003).

Some modifications were made based on the pilot interviews. The largest modification was to reduce the number of questions and phrase the questions somewhat more direct. Another change that was done was to simplify the initial information on what the study was about and the ethical information. The email message was improved to present a simpler overview of everything, in short sentences and with headings to make the message easier to grasp. An exact copy of the Informed consent sheet (which can be found in *Appendix A. Term of informed consent* on page 322) was also attached to the email for reference to provide complete information.

With these lessons made from the pilot study, it was possible to move on to the main walk-along interview study, whose description will begin in section *4.5 Participants* (page 90) later this chapter. First, however, follows a section about the physical context of the interviews – the Swedish town of Varberg – on the next page.

4.4 Main study context: Varberg

The architectural history of Varberg – the town of the interviews – is shown below, followed by a contemporary orientation (p. 83) and a description of the walking conditions (p. 86).

Architectural history of Varberg

The fortress defined and defines Varberg architectonically

Varberg originates from the fortress name *Wahrdberg*, which means "guard-mountain" (Wiking-Faria, 2005). The fortress (in Figure 5) is still today the town's most important building; its construction started at the end of the 13th century and was completed in 1618. In the 16th and 17th century it was one of Europe's most modern defence facilities, with improvements designed by Dutch architect Hans van Steenwinckel; besides its initial function as a castle and for defence, it also for centuries functioned as a prison (Blom, 1993).

Figure 5. Varberg fortress seen from sea.
Photo: Averater 2015. Creative Commons BY 3.0

Map of buildings and areas of the town Varberg linked to its architecture history

In the map in Figure 6, an overview is shown of the principal buildings and districts that are discussed in this text on the architectural history of Varberg.

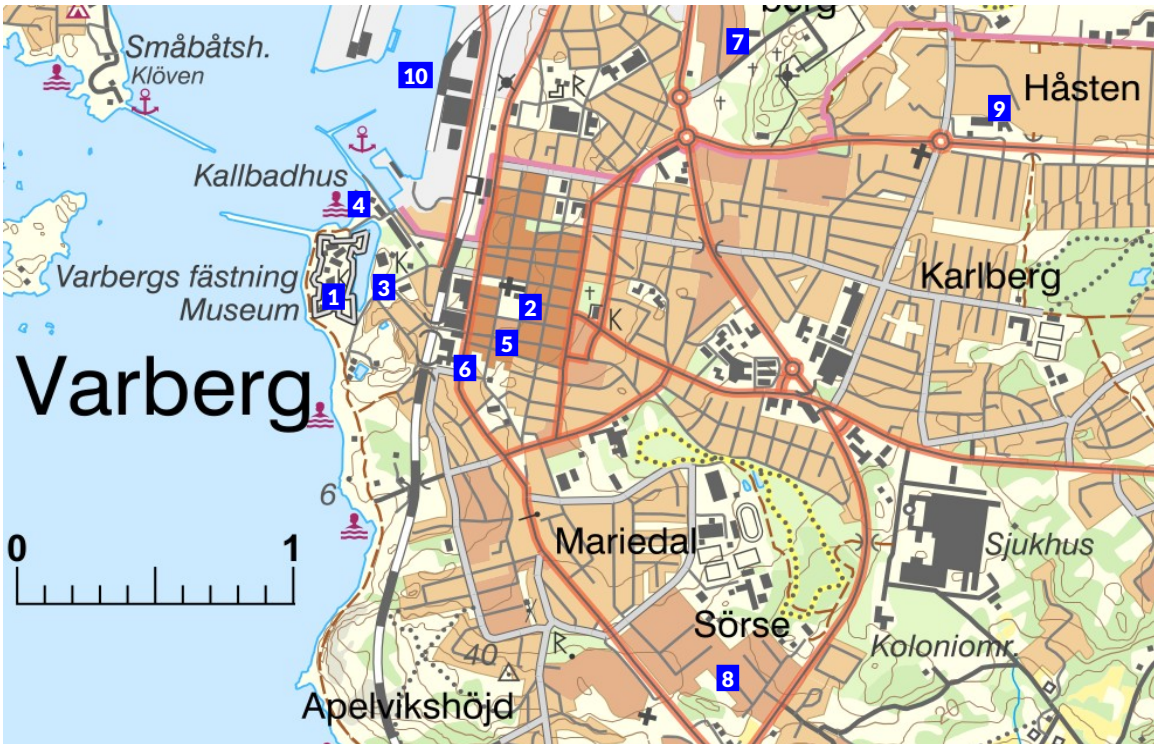

Figure 6. Overview of buildings and neighbourhoods in Varberg of relevance for its architectural history
Map: Lantmäteriet, 2019. Creative Commons CC-0. Scale shows 1 km. North is up.

1 **Varbergs fästning** The Varberg fortress
2 **Varbergs kyrka** The church of Varberg
3 **Societetsrestaurangen** A restaurant in Moorish style situated in a park
4 **Kallbadhuset** The cold bathhouse
5 **Varbergs sparbank** The 'Varbergs sparbank' bank
6 **Heijlska villan** A house in a Nordic national romantic style
7 **Brunnsberg** A residential area built in the 1950's
8 **Sörse** A residential area built in the 1960's
9 **Håsten** A residential area built in the 1970's
10 **Campus Varberg** The Varberg university branch

After town fires came new construction – but wooden materials still predominated

1612 the then Danish Varberg was burnt severely by Swedish troops. The edification was moved to a new location just next to the fortress (see Figure 7) for better protection (Blom, 1993). It was designed with blocks in a rectilinear street pattern in line with the town planning ideals of the time, and the street layout established after this great fire is still present today (Kvint, 2004). After the war ended, Varberg, together with the rest of northern Denmark, became Swedish in 1645 (Hallands kulturhistoriska museum, 2019). Varberg was (and is) characterised by wooden house architecture. 1666 the whole town burned down and was then re-erected in its current location (Kvint, 2004). Despite the fire risk wood was used as material, even for the church 'Caroli kyrka' (built with timber-frame construction). Also now, a recti-linear town plan was chosen, with square blocks (Kvint, 2004).

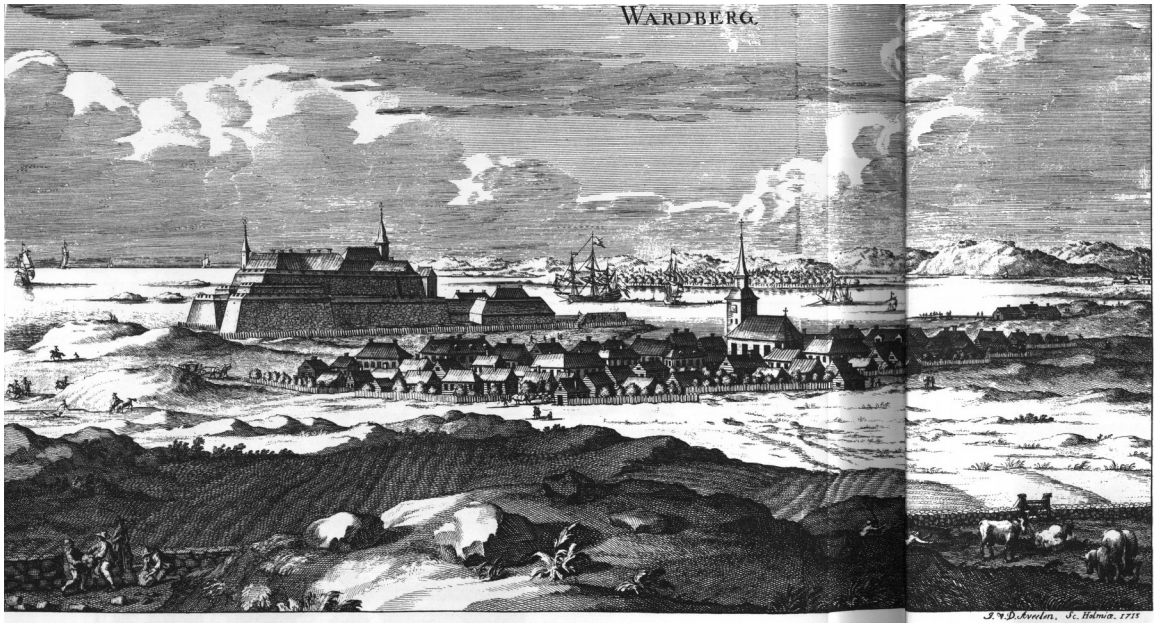

Figure 7. Varberg at the end of the 17th century.
The fortress (to the left) and the Caroli church (centre right). Note the town wall surrounding the settlement.
Source: Drawing by Erik Dahlberg in Svecia Antiqua et Hodierna, 1713. (Public domain).

Yet another fire: most important new buildings now made in stone

Also in the 18th and 19th century fires incinerated the built mass almost completely. 1767 a fire ravished Varberg once again, including the church (Svenska kyrkan, 2016). This time it was decided to erect the most important buildings in stone materials, such as the new church (still standing today; marked in green in Figure 8 below and depicted in Figure 9 on the next page) constructed in Gustavian style (i.e. Swedish variant of French neoclassicism) under supervision of the masonry master Friedrich August Rex. However, most of the construction consisted of wooden houses of one to two storeys. A few wooden houses are preserved from the period, one is the 'Lundquistska huset' by the square, built in the 1760s (left side of Figure 9 on the next page), designed by Sven Kellander (Kvint, 2017).

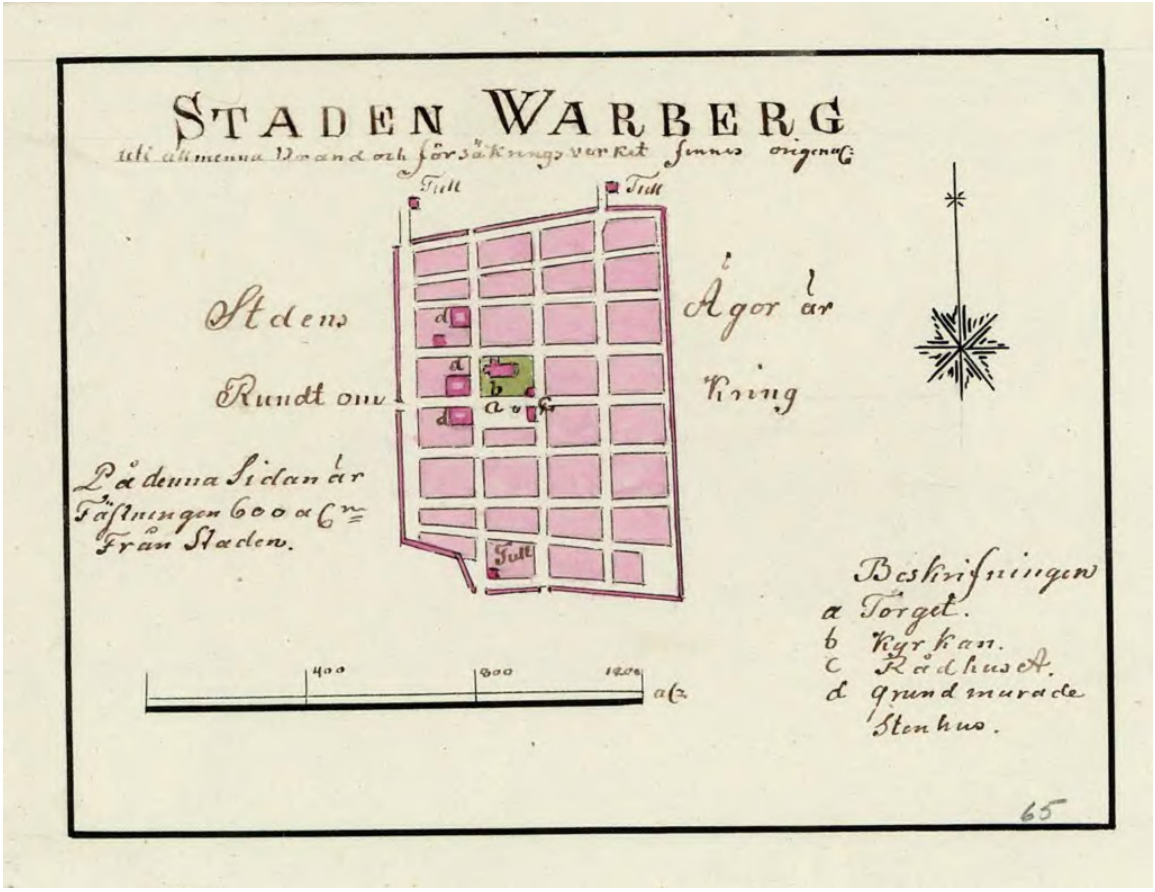

Figure 8. Map of Varberg, from ca. 1800.
(Note the church surrounded by a green background.)
Map: Fredrik Adolf Wiblingen, The Swedish National Land Survey database with historical maps. (Public domain).

Figure 9. The town square.
'Lundquistska huset' in wood to the left and the church in stone to the right.
Photo: Pseudonym 'Wolfgangus Mozart', 2009. Public Domain.

1863 the last great fire of Varberg occurred. All blocks south of the square burned down (Sandklef, 1963). After the fire, the square was extended. A new town hall was constructed with a yellow brick façade in header course and decorative crenellations over the entrance, designed by the town architect Frans Jacob Heilborn in a romantic style inspired by the medieval ages; several other public buildings were built with similar brick façades, such as the public school (Krus & Rutgersson, 2012). Stone was obligatory for constructions around the square; other houses were mostly built with wood as load-bearing and façade material (Krus & Rutgersson, 2012).

Wooden architecture built to support Varberg's rising popularity as a summer resort

Varberg became a popular summer spa town in the 19th century. The park 'Societetsparken' (Figure 58 on page 153) was created 1856. Its elegant restaurant 'Societetsrestaurangen' was completed in 1886, designed by architect Adrian Crispin Peterson in Moorish style. The surrounding park was leafy for the wealthy guests to enjoy the shadow (Gustavsson, 2009). Wooden construction continued to be the norm of the built architecture into the 20th century, considered a first-class construction method, without termite problems as temperatures are low. The wood production sector is important; Sweden is covered in forests. One outstanding example of wooden architecture is the cold bathhouse 'Kallbadhuset' by architect Wilhelm Gagner in mainly Moorish style (see Figure 10), finalised in 1903 (Kallbadhusets vänner, 2019). The cold bathhouse is eclectic in its design, with wood as building material painted in different yellow shades, an oriental style with onion domes and Gothic details such as the rose window above the entrance (Kallbadhusets vänner, 2019). To visit Varberg for baths and staying by the sea was popular already then and still is now.

Figure 10. The cold bathhouse 'Kallbadhuset', by architect Wilhelm Gagner.
Photo: Neil Roger, 2008. Creative Commons BY-NC-ND 2.0.

Expansion during the 20th century with public buildings and new housing districts

Between 1870 and 1910 the population more than doubled, and new buildings had to be erected not only inside but also outside of the old town limits. Among the new architecture constructed during the period the cooperative local bank 'Varbergs sparbank', designed by architect Emil Billing in a style inspired by French and Italian renaissance architecture (see Figure 11). The bank was finalised in the 1890s and forms a monumental building orientated towards the square (Krus & Rutgersson, 2012) It is characterised by its imposing architecture using yellow brick, charnockite and sandstone as materials.

Figure 11. The 'Varbergs sparbank' bank (left), by architect Emil Billing.
Photo: Author, 2019.

The South villa town ('Södra villastaden') just south of the town core was constructed in the beginning of the 20th century with big villas individually designed by architects. The oldest is the 'Heijlska villan' (see Figure 12 on the next page) from 1904 in a Nordic national romantic style, designed by architect Gottfrid Ljunggren with a wooden façade has an alternation pattern to give the illusion of horizontal timber logs, alluding to medieval Nordic stave churches (Petersen & Arnesson, 2008).

Figure 12. The 'Heijlska villan', designed by architect Gottfrid Ljunggren.
Photo: Author, 2019.

Soon, however, the town centre became full, and housing grounds had to be searched outside of it to cater to the expanding population. Districts were built outside of the town core, such as 'Brunnsberg' from the 1950s and 1960s (Varbergs bostads, 2019a). The 'Sörse' apartment area in modernist style was completed in the 1960s with three-storey houses in calcium silicate brick (see Figure 13 below), as part of the Swedish national political programme to construct a million apartments in ten years. Most apartments had own balconies or private patios.

Figure 13. 360 degrees perspective from the 'Sörse' area of three-storey housing.
Photo: Author, 2019.

In the 1970s the 'Håsten' area was constructed (see Figure 14), mainly with apartment buildings of only two stories, in line with ideals of the decade to construct low and close to nature (Lennartsson, 2014). Every apartment had its own dedicated entrance and most apartments had own outdoor patios (Lennartsson, 2014).

Figure 14. Two storey building characteristic of the 'Håsten' area.
Photo: Author, 2019.

During the 20th and 21st century, some new houses have been constructed in the town centre as infill or as replacement buildings; sometimes, but not always, harmonising with the surrounding old buildings. The historical continuity from the 19th-century small scale streetscapes together with the 17th-century rectilinear street pattern has become a main characteristic of Varberg (Krus & Rutgersson, 2012).

Contemporary additions

One noteworthy addition to the architectural composition of Varberg made during the 21st century is the university branch 'Campus Varberg' (see Figure 15 on the next page), designed by architect Christer Löfberg in contemporary style in the harbour area (Varbergs fastighets, 2019). Its buildings are designed with light and smooth plastered façades and big windows.

Figure 15. 'Campus Varberg' university branch (right).
Designed by architect Christer Löfberg.
Photo: Author, 2019.

The three tower blocks in south Varberg in contemporary style, by architect Gert Wingårdh (Figure 16 below) is another addition, with façades in red brick, and a wide view of the surrounding landscape (Varbergs bostads, 2019b).

Figure 16. Tower blocks in contemporary style in south Varberg
Designed by architect Gert Wingårdh.
Photo: Pseudonym "Wolfgangus Mozart", 2019. Creative Commons BY 3.0.

The architecture history of Varberg summarised

The architecture history of Varberg can be characterised by four streaks threading through the centuries. The first and foremost is the Varberg fortress, that during the centuries has been vital in both function and form. Another streak is the dominance of wooden houses in the building mass, intertwined with recurring town fires which are followed by reconstruction, often in a modified location. Thirdly, Varberg is characterised by its low building scale, as can be seen in Figure 17. A newer, fourth thread is architecture connected to tourism, tracing back to the exclusive restaurant 'Societetshuset' and the cold bathhouse.

Figure 17. Varberg town centre, characterised by its low building scale, seen from the castle.
Photo: Author, 2019.

Varberg as town and place

The geographic location of Varberg

As can be seen in Figure 18, Varberg is located in northern Europe in the south-west of Sweden (about 70 km south of Sweden's second-biggest city Göteborg).

Figure 18. Geographic location of Varberg in the south-west of Sweden.
Map: © OpenStreetMap contributors. Open Database License and Creative Commons BY-SA. 2.0.

The town centre

Varberg is a small seaside town whose town centre is quite compact in its character. The preserved town core is central to Varberg, having a low scale of around two storeys and small streets, laid out in a rectilinear chessboard street pattern with a fine-meshed street grid, usually with sett stones as paving material. It is coherent and provides an integrated, uniform

building mesh. The old fortress is an iconic building (at top left in Figure 19). The town square ('Stora torget' in the centre of Figure 19) is also an identity marker.

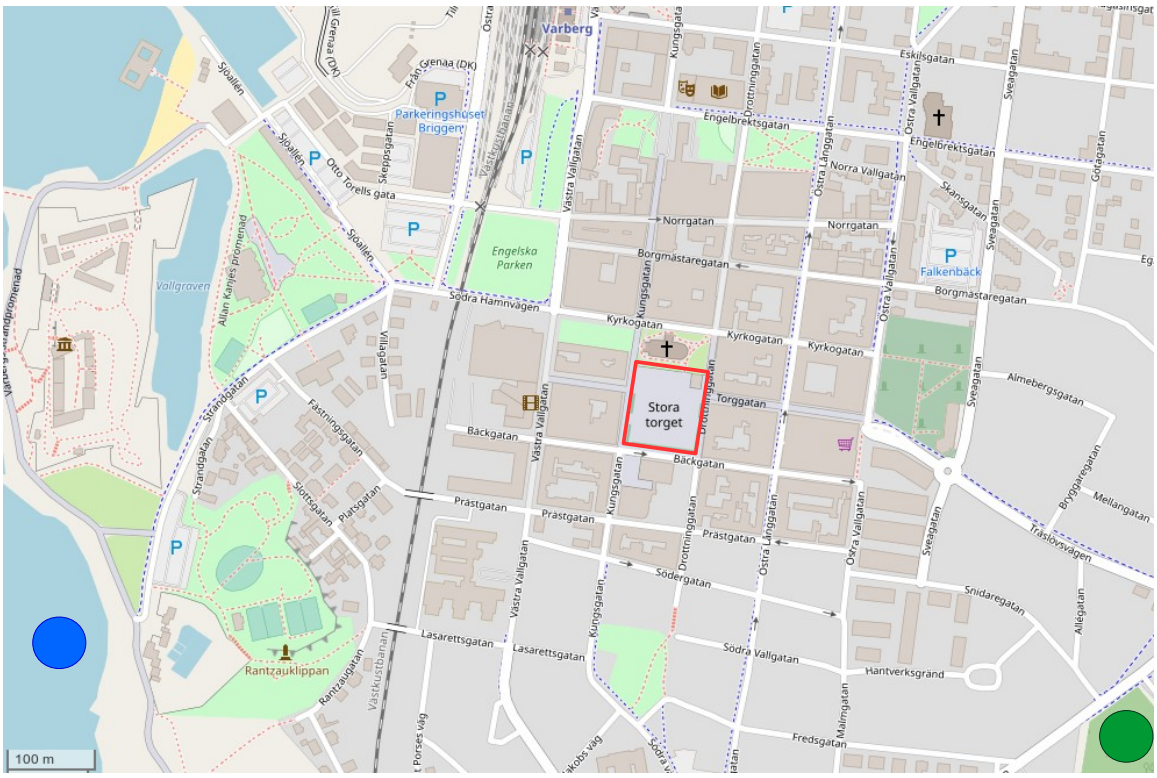

Figure 19. Varberg town centre.
From the square Stora torget (red square; centre) within 10 min. walking distance you reach the ocean (blue circle; bottom left) or the forest Påskbergsskogen (green circle; bottom right).
Map: © OpenStreetMap contributors. Open Database License and Creative Commons BY-SA. 2.0.

Streets in the town core are narrow and mostly paved by sett stones, lowering the traffic speed. Some streets have pedestrian priority where cars should drive at walking speed, but the most common configuration is a one-way street (30 km/h) with pavements for pedestrians on both sides. There is also a bicycle path network. A town market is held two times weekly all year at the square. Also, many small shops are situated along the town streets, as well as two grocery stores and a small shopping centre. Besides shopping the ocean and forests are also available within 10 minutes by foot from the town square as seen in Figure 19. Tourists are attracted to the seaside town in the warmer months and as a consequence the number of persons in the town balloons during summer.

Number of inhabitants

In 2017 there were 63 000 inhabitants in the whole municipality of Varberg of whom 35 000 inhabitants lived in the urban area, i.e. the town of Varberg (Varbergs kommun, 2019). Varberg is similar in size to the coastal town Itapema in Santa Catarina, Brazil, which had 61 000 inhabitants in the municipality the same year (IBGE, 2019). By comparison, Porto Alegre in Rio Grande do Sul, Brazil had 1 468 000 inhabitants in the municipality in 2017 (Fundação de Economia e Estatística, 2018).

Local climate

The local climate of Varberg is cold. It will here be compared to that of Itapema in Santa Catarina, Brazil (first in parenthesis) and Porto Alegre, Rio Grande de Sul, Brazil (second in parenthesis). On the hottest summer day in Varberg the temperature typically is maximum +21 °C during day (Itapema: +29 °C; in Porto Alegre: +30 °C), and minimum +14°C (+23 °C; +21°C) during the night. On the typical coldest winter day the maximum temperature is +2 °C (+20 °C; +19 °C) and the minimum temperature is -2°C (+14 °C; +10 °C). The length of the day varies a lot during the year, from under 7 hours (over 10 hours for both Itapema and Porto Alegre) day length in the winter solstice to almost 18 hours (approx. 14 hours for both cities) in the longest day of summer. The average monthly rainfall is from 41 mm (83 mm; 84 mm) to 80 mm (167 mm; 140 mm) during the year. Snowfall can occur in wintertime in Varberg, from November to April. (Weather Spark, 2019c, 2019a, 2019b)

Safety from crime

Varberg is a safe town. In 2017 there were 18 robberies in Varberg reported to the police, or 29 police reports of robbery per 100.000 inhabitants (Nyqvist & Heppling, 2018). In Itapema 258 robberies were police-reported 2016, or 436 police reports of robbery per 100.000 inhabitants (Borba Nascimento & Wander Demitrio, 2017). In the municipality of Porto Alegre, there were 34 907 crimes committed in the robbery category 2017, or 2 377 robberies per 100.000 inhabitants (Estado do Rio Grande do Sul, 2019). (Please note that crime statistics are difficult to compare with accuracy internationally due to different reporting methods and definitions.)

Walking in Varberg

Walking prevalence

According to a regional survey made by Västsvenska paketet (2017), from which all data in this paragraph originates, walking is the dominant way of moving about for trips up to 2 km in the Western Sweden region Varberg belongs to. Substantially more than half of these short trips are made by foot. 12 per cent of the total trips in Varberg were made by foot in 2017. For more detailed data only aggregate regional statistics for western Sweden was available, covering modal shares in relation to trip purpose and length. In average 15 per cent of all trips were made on foot in this region. 58 per cent of the trips up to 2 km in the region were made by foot, and 12 per cent of the trips between 2 and 5 km. For 'shopping' and 'leisure/exercise' it was relatively more common to walk, with 22 per cent of trips made on foot. It was also common to walk to fetch/leave kids (18 %) and to go to the hospital/health centre/dentist (17 %). Trips to/from work had the lowest walking modal share (10 %).

Flows of pedestrians are generally low in Varberg, making it easy to walk effortlessly without crossing into other people. In summer, especially on sunny days, the density of pedestrians is however high, especially in the town core and along the boardwalk.

Physical conditions for walking

One characteristic of Varberg is the dominance of setts as paving material. In the town core, small setts are the most common paving materials, which are unfriendly towards wheelchair use. There are also sections with bigger setts that are even worse from a wheelchair user point of view. In recent years the municipality has added granite oblong flagstones to facilitate physical accessibility. All three paving materials can be seen in Figure 20 on the next page.

Some streets and pavements in the town core are narrow. The combination of sometimes uneven paving and narrow streets can make wheelchair access difficult. The winter climate is harsh with snow and ice. This exacerbates unevenness and can make streets, stone-clad ones in particular, slippery. Many buildings in Varberg town centre are old and lack elevators. The floor of some shops is elevated but only some of them provide ramps. Newer developments such as the 'Gallerian' shopping centre are universally accessible.

Figure 20. Types of stone pavement materials in Varberg.
Small sett stones (surrounding street crossing), big sett stones (in the middle of crossing) and granite oblong flagstones (under feet of the person in the photo).
Photo: Author.

Pavements in Varberg for pedestrians are for the most part of a uniform standard. The surface outside of the town centre is usually asphalt, which in most cases is quite even, without detectable height variations. However, in the town centre stones and setts are used which can result in unevenness. This means a small inconvenience for an abled person but can make for a severe limitation for a disabled person. When walking you can usually focus on eye level, and do not need to verify the surface evenness. On almost all pavements it is possible to walk two persons together side by side. On new and refurbished zebra crossings the kerb is dropped to facilitate access with wheelchair and baby strollers. Law prescribes that motorists must stop at zebra crossings and this law is generally well respected, making it easy to cross the street and continue along an almost straight desire line. However, in the centre of Varberg, on streets with a low speed limit, there are several pedestrian crossings that lack standard signage and zebra crossing stripes. Those places have an inherent ambiguousness regarding who has priority: the pedestrian or the motorist.

More about the physical conditions of Varberg will be detailed in the Findings chapter in section *5.5 Physical feasibility* (p. 181).

Walking in a green context: national customs and local opportunities

Walking is the most common form of exercise in Sweden. According to surveys and statistics by (Riksidrottsförbundet, 2019; SCB, 2019) on which the data in this paragraph is based on, around a third of Swedes participate in an outdoor activity at least once a week. Approximately 3,9 million people between 6 and 80 years walk as exercise; more than four of ten persons. Walking is the most common exercise activity for females, with more than five of the females walking regularly. For males, running is the most popular exercise activity but walking came second with a bit over three of ten males walking for exercise regularly.

Everyone has an established "right to roam" by law; even to wander in natural areas privately owned (Savage, 2017). In Swedish culture, it is rather common to wander in nature. This type of walk serves its own purpose; it is not done to fulfil an errand or to get to a destination. Instead, it is circular, denominated as 'walking a round'. In natural areas near towns, there are walking paths well prepared to facilitate this purpose.

Varberg provides rich opportunities for wandering in nature, along the sea, in forests and in parks. Green walking areas in Varberg are pointed out on the map in Figure 21 on the next page. The places and neighbourhoods on the map are connected to the interview discourses that will be outlined in the Findings chapter in section *5.3 Green aspects* (p. 143).

Within the town centre especially two parks are popular for walking in a green context. The first park is named 'Engelska parken' is a medium-size park that is well-kept, with benches, flower arrangements and statues. 'Societetsparken' is the second of these two parks, situated between the town centre and the 'Varbergs fästning' castle, with a restaurant, miniature golf, benches, a tennis court and a rose garden amongst others.

The seaside boardwalk 'Strandpromenaden' starts just south of the town centre and runs along the ocean to the 'Apelviken' neighbourhood. It is very popular for walking to enjoy the beautiful natural surroundings. The boardwalk is reserved for pedestrians and cyclists; it stretches out for several kilometres facilitating walking in a relaxed manner.

In and around Varberg several forest areas have walking paths prepared inside them, such as the 'Påskbergsskogen' forest which is reachable by foot in 10 minutes from the town centre. Another forest is situated near the 'Håsten' neighbourhood.

Green areas and associated neighbourhoods for walking in Varberg

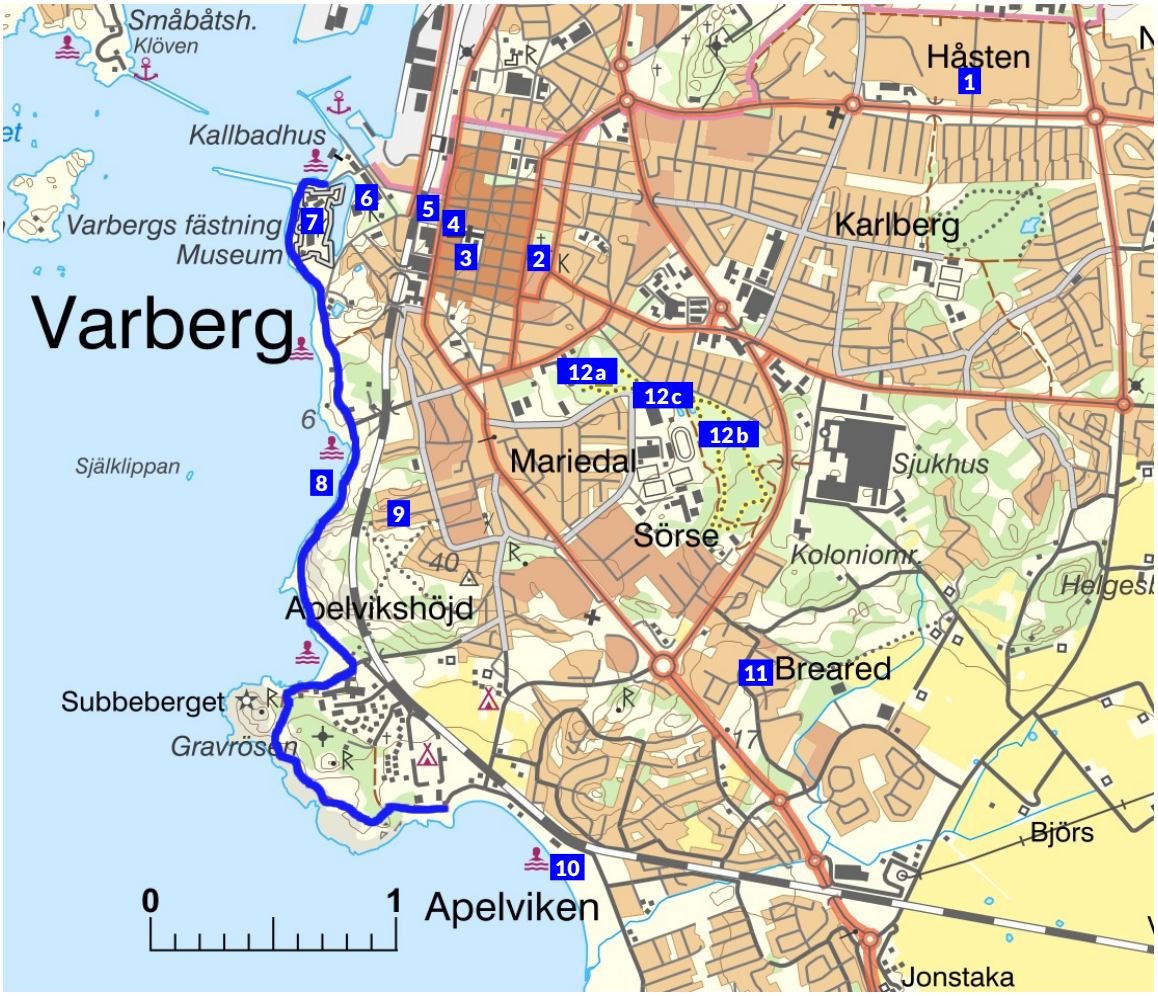

Figure 21. Overview of green areas and associated neighbourhoods in Varberg.
Map: Lantmäteriet, 2019. Creative Commons CC-0. Scale shows 1 km. North is up.

1 **Hästen** A residential area with low apartment buildings adjacent to a forest
2 **Gamla kyrkogården** The old cemetery
3 **Torget** The town square
4 **Brunnsparken** A park/square
5 **Engelska parken** A medium-size park
6 **Societetsparken** A big park with a restaurant within it
7 **Varbergs fästning** The castle/fortress of Varberg
8 **Strandpromenaden [along the blue line]** The seaside boardwalk
9 **Hästhaga** A residential area with detached houses near the boardwalk
10 **Apelviken** A seaside beach neighbourhood, popular in summer
11 **Breared** Newer residential area
12 **Påskbergsskogen** Forest in two parts (a and b), with small park 'Nöjesparken' in the centre (c)

4.5 Participants

Participant selection and recruitment are described, followed by a summary of how consent was obtained. Finally, participant data on age, gender and walking frequency is presented.

Selection

The interviewees have been selected from inhabitants in the town of Varberg. The research participants were chosen among adults (from 18 years of age) living in the selected area of study that were capable of walking with or without mobility aids for at least 30 minutes without problems. Another criterion was that eligible participants should be able to express themselves fluently in Swedish or English. It was decided to not include children in the research study due to lack of experience of interviewing children as well as ethical considerations regarding informed consent. Within the adult cohort, a broad selection was strived for. This variation in the group was successful in regards to physical function variation as there were a broad spectrum of participants, from those using wheelchairs and other mobility aids to those that walked. In regards to gender, there was an overweight of females (two-thirds of the participants). It was not possible to get an optimal distribution of ages, as it was difficult to find young people willing to participate in the study.

Purposeful sampling was used in the sense that only participants living in the selected location (the municipality of Varberg) have been eligible. During the recruitment process, variation was sought through trying to adapt recruitment methods to achieve a variation in the participant group. For example, in trying to get also younger participants posters were put up at the university branch, sports associations were contacted, and parents were given leaflets and asked for participation at the municipal open pre-school.

The participants were free to choose which walking path that we would traverse during the interview, on the condition that the area we walked in should be an area they were familiar with and usually walks in, as it was assumed that they could give more detailed and nuanced thoughts and opinions about a walking area that they know very well.

Recruitment

Process

To gather participants for 17 interviews was quite a lot of work. A flora of different recruitment procedures were used to achieve a sufficient number of interviewees. Firstly, a web site was created named 'Varberg by foot' at www.varbergtillfots.se and leaflets were lay-outed. A public servant working for the Varberg municipality was contacted which agreed to print out the leaflets and distribute them on a municipal event in Varberg.

After arrival to Sweden, during the start of the PhD sandwich period, A3 colour posters were lay-outed, printed and then posted in all medium to large size food stores in and around the centre of Varberg, as well as other suitable locations such as the public library in the town centre. To reach younger participants posters were placed in the Varberg university centre and the public open pre-school was contacted to ask parents to participate.

However, this was not sufficient to get enough participants, so contact information for all non-governmental organisations registered with the municipality was researched, and each one of them was contacted by email. These organisations included for example residents', sports and environmental organisations. The topic of the research was explained in an introductory e-mail to the responsible for the association, as a step to reach the members of the organisation with information about how to participate in the study.

As the number of participants still not was enough, I managed to get an interview with the local public newspaper, which entered the very front page. Surprisingly this free publicity for the study did however not lead to a single new participant.

Finally, a place was booked at the Varberg town square during a market day, where I stood by a table armed with leaflets and a poster to recruit participants. This was a good way of being able to directly explain to potential participants what the study was about.

With all these recruitment strategies combined all together, ultimately it was possible to schedule 17 interviews of which 16 were individual and 1 was with a couple.

Protocol

When someone interested contacted me about the research project they were normally answered by e-mail (or in some cases by telephone.) At that stage, I presented myself and briefly explained the context, aim and relevance of the study. In the e-mail, practical information about how the interviews are made and how long time they would take was stated. The conditions, including ethical information (the same as in the consent form), were also detailed. Finally, I asked the participant if he/she had any questions, if she/he agreed to the conditions and asked him/her to suggest a suitable interview date, time and place.

Consent

Permission was sought firstly with a summary of the conditions and ethical information by email. The participants were also sent the Informed consent form by email in beforehand so that they could read it. I asked the participants if they had understood the ethical information and if they had any questions by e-mail before scheduling the interview. Before the interview started, the Informed consent form was presented in print, and I explained the main points orally. The participants were then asked if they understood the form and if they had any questions. The form was signed in two copies by the participant that consented to the conditions, who kept one copy for themself. The consent form can be found in *Appendix A. Term of informed consent* on page 322.

This study has been approved by the Ethics Committee of Universidade Federal do Rio Grande do Sul (Comité da Ética do Universidade do Rio Grande do Sul) as will be detailed in section *4.9 Ethical considerations* on page 107.

Participant data

In this section, data on participants age intervals, gender, ablebodyness, as well as number of participants per interview and how often they walked per week will be presented. The diagrams are shown here, while the tables can be found in *Appendix B. Tables for answers to introductory questions* on page 325.

Decade of birth

In total 18 participants were interviewed. They were mostly older; 13 of the 18 participants (72 %) were born before 1960 while five (28 %) of them were born 1960 or later. The distribution of participants per their decade of birth can be found in Figure 22. As the interviews were made in the year of 2018, the decade between 1940 and 1949 corresponds to the age span of 69-78 years, the decade 1950-1959 to 59-68 years, the decade 1960-1969 to 49-58 years and finally the decade between 1970-1979 corresponds to the age span between 39 and 48 years.

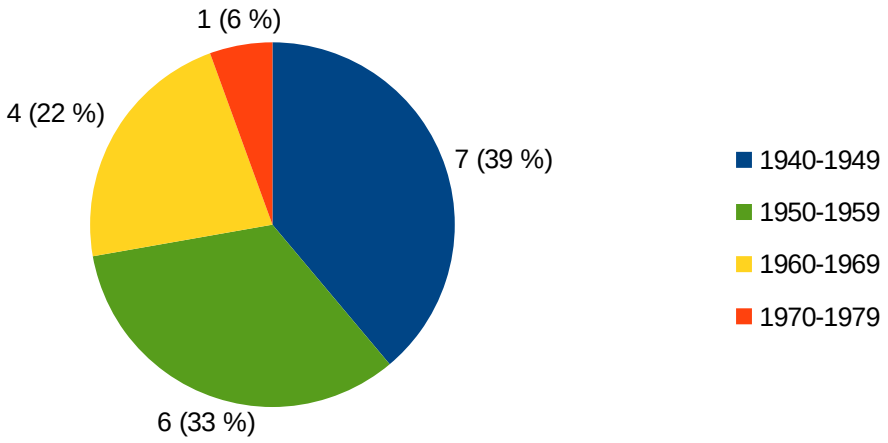

Figure 22. The decade of birth per participant
(number of participants = 18). Source: Author.

Gender

Two-thirds of the participants were female and one-third male, as seen in Figure 23 below.

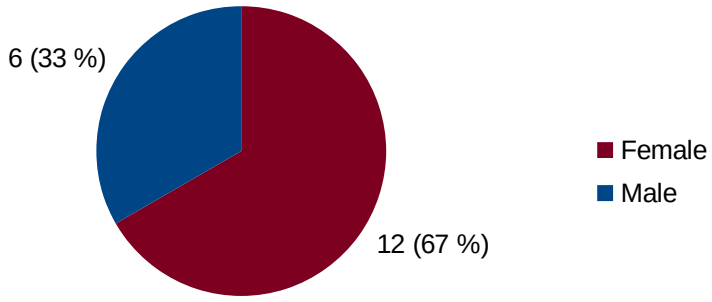

Figure 23. Gender per participant.
(number of participants = 18). Source: Author.

Ablebodyness

Four of the 18 participants had some kind of locomotor disability (see Figure 24 below), some of them used wheelchairs or other aids to move about.

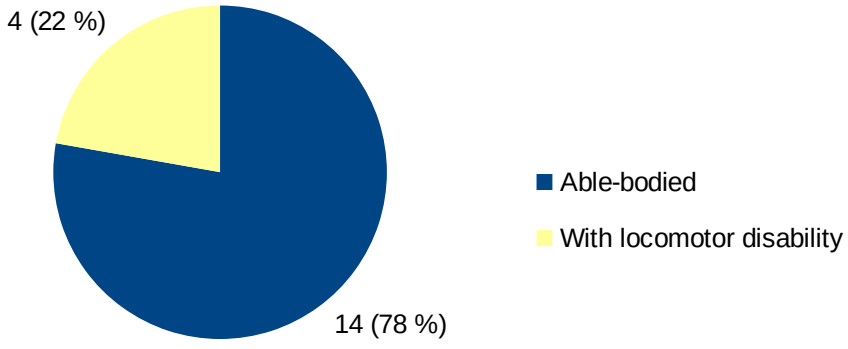

Figure 24. Ablebodyness per participant.
(number of participants = 18). Source: Author.

Number of participants per interview

17 interviews were conducted with 18 participants in total (see Figure 25 below). One interview was with a couple (female and male) and all the others were with one participant.

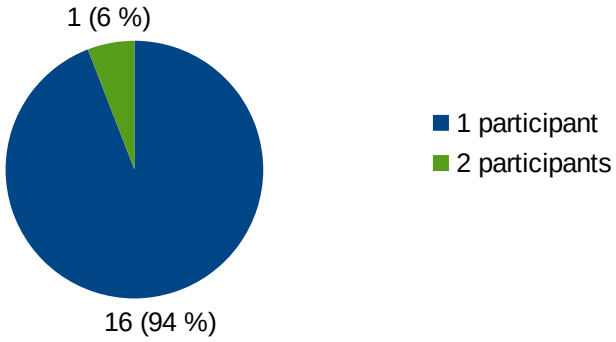

Figure 25. Number of participants per interview.
(number of interviews = 17). Source: Author.

Days per week walking in the own neighbourhood

The first question to the participants was *'How many days per week do you walk in your neighbourhood?'*. To walk every day was the most common, as can be seen in Figure 26 below.

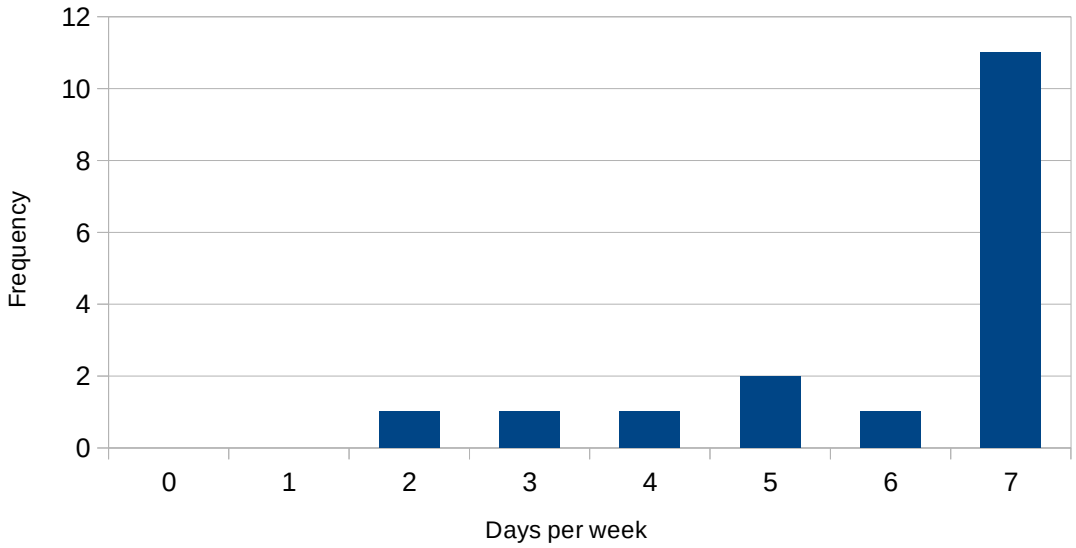

Figure 26. Q1) How many days per week do you walk in your neighbourhood?
(number of interviews = 17). Source: Author.

The remaining interview questions will be listed in the interview guide on the next page. The responses to the remaining interview questions will be presented in Chapter 5 (on page 111).

4.6 Interview guide

This section starts by explaining the semi-structured interview format. Secondly, the question domains that structure the interview questions are explained. Thereafter follows the main content of this section in several sections, moving through the interview step-by-step from start to end.

Interview format

The interview length was decided to be kept, to the extent possible, to between 30 and 90 minutes, in line with recommendations from three other researchers: (Clark & Emmel, 2010; Garcia et al., 2012; Jones et al., 2008).

Warm-up questions are important; they can make participants relax and are essential to establish rapport, as stated by Garcia et al. (2012). It is preferable to start with general questions such as 'What do you like and not like about the area?' to steer towards the intended topic, according to the findings of Degen and Rose (2012). Based on these researchers' advice, a general question simple to respond to was chosen – on how often the participant usually walks in the area – as the first question in the interview guide. The questions were prepared to be open-ended and to in total only address two themes, which followed recommendations from (Garcia et al., 2012).

The interviews were semi-structured in their format. In practice, this meant that the participant questions were inserted into the interviews in such a way and order that the conversation would flow as natural as possible, adapted to each interview situation. During most parts of the interviews, the conversation was free-flowing, although it was steered towards the topic at hand when participants' discourses deviated to unrelated themes.

All interviews were conducted in the Swedish language. As a consequence, the questions and instructions were prepared originally in Swedish and have therefore been translated to English in this text.

Question domains structure interview questions

Two of the research sub-questions, first introduced in section *1.3 Research questions* (page 24), are relevant for the interview guide structure, working as question domains:

1. **How do the inhabitants experience walking in their neighbourhood?**
2. **How do these experiences influence their walking choices?**

The first question domain addresses the participants' experiences of walking, while the second considers how these experiences affect how much the participants walk. The question domains form the basis for questions in the interview guide that will be presented shortly. The first part of the interview guide regards question domain 1, on experiences of moving about on foot. The second part, linked to question domain 2, contains questions that connect the experiences with the decisions of the participants in regards to walking.

Start of interview

The participant was informed that the objective is to know about their experience of walking in their vicinity, and also about the main points of the consent form, especially regarding the voice and route recording and could then state questions. Next, he or she signed the consent form, which is exhibited in *Appendix A. Term of informed consent* on page 322.

Introductory guidelines stated to interviewees

Great that you were able to participate in this interview about how you experience to move about on foot in your vicinity! The aim is to get more knowledge in order to be able to design urban neighbourhoods that are better adapted to walk in. You choose which route and for how long we will walk. I need your acceptance of the conditions on this form.

- Your participation is voluntary and you can cancel your participation at any time.
- Our conversation will be recorded and the route we walk will be saved on a digital map.
- Your name will be replaced with a code so that you become anonymous.

Please read the form and ask if you have any questions. […]

Do you consent to participate, and can you, in that case, sign the form?

Warming-up phase

The recording was started and an easy question was stated to get the conversation started.

Time and place synchronisation

Great, now the recording has started and we can start to walk! It is <date> at <hour:minute:second> right now and we walk pass <street name>, <number> on the left hand side.

Rationale: To warm-up and get a time marking recorded to prepare for GPS synchronisation.

Propensity to walk

Q1) How often do you usually move about on foot here in your vicinity?

Rationale: To explore how intimate the participant's walking connection with the vicinity is.

Question domain 1: The experience of walking in the vicinity

These questions in this section were stated to explore how participants perceived walking in, and how they usually walked in their neighbourhood.

Reasons to walk

Q2) What are the most common reasons for you to walk here?

Rationale: To get to know the objective for walking, such as to get to a certain destination or to get exercise. Follow-up questions can be used such as 'How often?', 'How come you walk in this case?', 'Which route do you usually choose in this case? Why?'.

Positive aspects

Q3) What do you think is positive with your vicinity in relation to walking?

Rationale: To grasp the participants' environmental priorities through a simple question.

Negative aspects

Q4) What do you think is negative with your vicinity in relation to walking?

Rationale: To understand also negative priorities, what the participant avoids.

Question domain 2: Experiences and perceptions in relation to walking choices

These questions were stated in relation to participants' propensity to walk.

Route choice

Q5) Can you tell me about why you chose to take precisely this route?

Rationale: To make the participant compare walking routes (options) in a concrete manner

Environmental motivators for walking

Q6) What in the outdoor environment makes you to choose to walk more?

Rationale: To know the most important positive environmental aspect for willingness to walk. Follow-up questions such as 'How come?' and 'Is there anything else that makes you choose to walk more?' can be used.

Q7) Then we are soon at the end of the interview. I wonder, on the whole, what did you like the most with the outdoor environment during the promenade we have just walked?

Rationale: To ask the participant about the most salient positive aspect of the walk.

Rounding off the interview

Anything to add?

Q8) Then this interview nears its end. Before we conclude, would you like to add anything?

Rationale: To signal that the interview is coming to an end and to give the participant an opportunity to mention aspects which have not been covered in earlier answers.

Questions about the research project?

Q9) Is there anything you want to ask about how the research project is organised? You can also ask me later via telephone or e-mail if you want.

Rationale: To give the participant an opportunity to ask about the research process in itself.

End of interview

Then I stop the recording and the interview has ended. I am grateful that you could participate in this interview. Thank you for your participation!

Follow-up questions

These follow-up questions have been adapted from the examples listed by Kvale and Brinkmann (2014) and Magnusson and Marecek (2015) and were stated when needed during the interviews.

Why?

How come?

Can you tell me more about that?

Can you describe it to me more in detail?

Do you have any more examples of that?

After having detailed the interview questions, the next section will address the technical procedure before, during and after the interviews.

4.7 Procedure

This section summarises how the walk-along interviews were conducted from a technical viewpoint. In *Appendix C. Detailed procedure guide* (p. 330) detailed, step-by-step instructions are found.

Equipment

A good quality small lapel microphone with wind guard is recommended by Clark and Emmel (2010). Recording equipment was thus chosen after careful review of its outdoor recording quality in wind, with a combination of a wireless Bluetooth microphone transmitter and receiver and a wired microphone as extra assurance, all connected to a portable voice recorder. To track the route walked on a map an Android GPS app named OSMTracker was used. For synchronising and analysing map and audio data the computer program JOSM was used, with Audacity and VLC for audio processing and playing.

Protocol

Thorough preparation is needed: to set up the voice recorder, check batteries, give the participant the microphone and verify that the recording works, also during the actual interview as prescribed by Garcia et al. (2012). Two hours before each interview the equipment was connected, audio and GPS recordings were tested battery charge checked and time synchronised between mobile and voice recorder. The Bluetooth microphone was loaned to the participant, who was asked to say something in a test voice recording. After a successful test, the proper voice recording was started. Then the OSMTracker GPS app was started, in which a voice annotation was made with the exact time and precise location stated by the researcher to be able to synchronise GPS and audio recordings later.

After the interview, all recordings were transferred to the computer. Audio channels were synchronized in Audacity, and then the JOSM program was used to synchronise audio and route data on top of a map from OpenStreetMap. The result was that it was possible to see exactly on the map where the participant was when he/she made a certain comment. This was useful in the data analysis phase, which is the topic of the next section.

4.8 Data analysis

After shortly describing the first data analysis stage of transcription it is explained how the answers to the obligatory introductory interview questions were analysed to distil codes and categories. Finally, it is outlined how the free-flowing interview discourses were analysed.

Transcription and synchronisation

All interviews were fully transcribed in intelligent verbatim style in documents with line numbers, double spacing between lines and large margins to facilitate annotations. Before the coding stage began, the audio track from the interview was synchronised with the GPS track. The GPS track and the audio track was put together in a mapping application.

Analysis of answers to the introductory questions

Finding the obligatory introductory questions and their answers in the transcripts

In the start of each interview, several open-ended questions were made. These questions were part of the interview guide to state them similarly in each interview and have been detailed earlier in this chapter. The interview transcripts were searched for the answers to these initial obligatory questions. These answers were compiled in a spreadsheet and were also printed out. Qualitative content analysis in its conventional form was used as the analysis method, with codes organised into categories, as described earlier in this chapter, using the article of Graneheim and Lundman (2004) as a guideline to the analysis method. To illustrate how the analysis of the obligatory introductory questions was done let us see an example where we will use one question and one participant's answer to this question to show the process of getting from question through a coding process to the establishment of eight categories. We will use one of the participants answer to the second question as an example for this purpose. The question and the example answer is detailed on the next page.

From answers to meaning units

One answer to the question 'Which *are the most common reasons that you walk here?'* was:

> **"Well, the town is so small, there is no use taking the bicycle when you will walk five minutes and at the same time, you get exercise. So, well it, it is just totally natural for me to walk."**

The answers to the interview questions could cover several aspects; they often had several sentences. To make sense of the answers they first were split up into responses, or *meaning units* in qualitative content analysis terminology. Each answer was therefore analysed to pick out distinct topics. Continuing our example answer, the three colour-marked meaning units below were selected as being essential to the distinct topics of the interviewee's answer:

> **"Well, the town is so small, there is no use taking the bicycle when you will walk five minutes, and at the same time you get exercise. So, well it, it is just totally natural for me to walk."**

From meaning units to codes

To find the essence of each response (i.e. meaning unit), the next step was to codify. We continue the same example emanating from the question 'W*hich are the most common reasons that you walk here?'*, with the three responses to the left of the arrow, and the constructed codes to the right in Figure 27. This codification process was repeated with all the participants' answers to all of the introductory questions, resulting in a large array of codes.

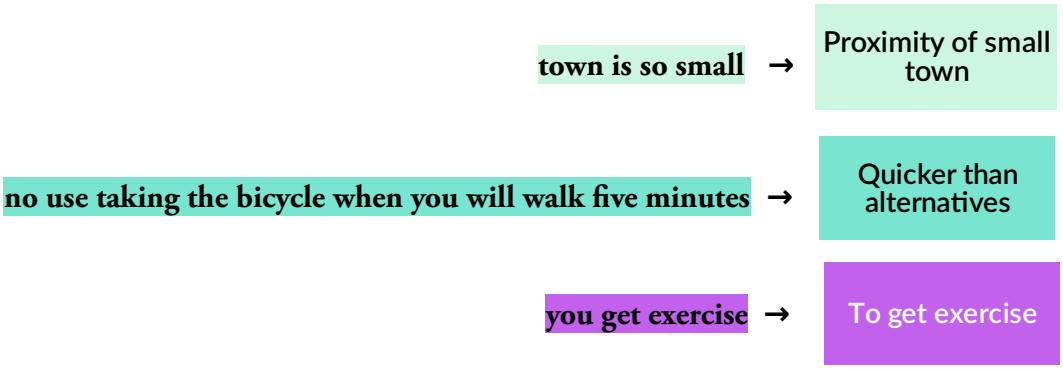

Figure 27. Illustration of how meaning units are transformed into codes.
Three responses (left column) to the question "Which are the most common reasons that you walk here?" each summarised to construct its respective code (right column).
Source: Author.

From codes to categories

This brings us to the next phase, in which the codes construct eight main categories. A though-intense process of sorting and re-sorting, categorising and recategorising followed until finally a sound order could be found of the codes. The codes then formed (or constructed) eight categories. To further our example, we will have a look at two of the codes recently displayed, which were found to have similarities (see Figure 28 below).

Figure 28. Two codes.
Source: Author.

Both two codes – 'Proximity of small town' and 'Quicker than alternatives' – had logically something to do with the morphological configuration of the town in which the interviews occurred. Destinations are grouped quite close together in the town of Varberg, which facilitated walking as a transport mode making it very much possible to handle almost all daily errands on foot provided that you live in or near the town centre.

A bit of a puzzle then occurred trying to make sense of codes that had to do with each other and also to find a category with a name that captured the essence of the phenomenon. In the example case, the central phenomenon had to do with destination proximity, urban morphology and accessibility and was deemed to operate on the scale of a neighbourhood or the town centre. In addition, five other codes (together with the two codes already introduced) were grouped into the same category. The final list of codes in the category is shown in Figure 29 to the right.

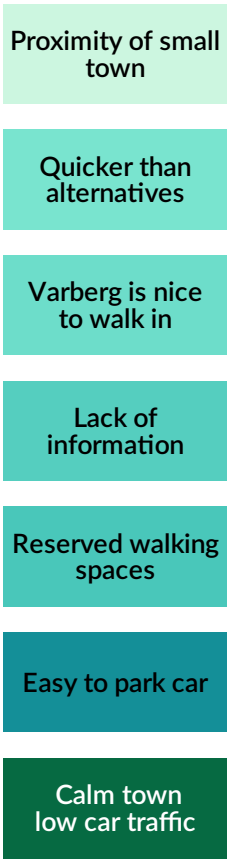

Figure 29. Codes that formed the category 'Urban accessibility'
Source: Author.

To construct a category a descriptive, spot-on name is needed. For the example case, the name was finally settled as *Urban accessibility* because accessibility to desired destinations and activities was a key issue. The qualifier urban was needed to distinguish to accessibility questions related to physical needs (which are addressed in another category).

From categories to areas

The individual categories and areas will be presented in the Findings chapter (p. 111). Areas have not been used for analysis purposes, only to group categories logically. Each category was sorted into one of three areas. The category *Urban accessibility* (of our example) was allocated to the **Physical environment** area, as it was related to how the urban physical setting is configured (i.e. the street configuration) as well as the buildings and their uses.

Analysis of the main, free-form interview passages

Transcripts read through many times and then annotated

Most of the interviews were made in a free-flowing conversation format. The 17 interview transcriptions were read full through multiple times to make sense of the conversation. During repeated readings of the transcripts, margin annotations were made. These annotations were then used as a basis to distil a summary page for each interview.

Transcripts read again, category by category

The transcripts were then read through again in the perspective of the different categories, at least two times for each category, and complimentary annotations were made. During this reading all relevant passages (pertinent to the category at hand) were marked with colour page flags, e.g. excerpts that were related to urban accessibility were marked in a turquoise colour in the margin and a turquoise page flag. The interview number and line number of the relevant excerpt were codified together with a keyword in a computer spreadsheet. For example, the word 'near' was listed in the Urban accessibility category multiple times, indexing each interview and line number where it occurred.

Complimentary computerised search to find more occurrences of keywords

The keywords that had been extracted from the text were also searched through the computer word processor's search function in the digital version of the interview transcripts and new matches (in addition to those that have already been found manually) were also annotated in the computer spreadsheet. The complementary sections were also marked by the colour of their category in the margin of the print transcript.

Paper mind-maps to logically order interview passages into subcategories

The keywords, all belonging to the same main category, were then grouped on paper with reference to interview number and line number and several iterations of mind-maps were made to find logical subcategories. All subcategories were then articulated in the text of the thesis manuscript document. For many (but not all) of the categories, the codes that were used to analyse the initial answers to the obligatory questions (as was described on page 102 and onwards) could be totally or partially re-used in form of subcategories.

The text is structured into subsections

The subcategories in most cases structure the text that is written in each category, i.e. the subcategories are re-used as subsections in the text. For some categories (usually minor) changes had to be performed to avoid repetition and/or to create a coherent text structure. For example, in the section of one of the eight categories, two out of three subcategories were used unaltered as subsections in the text, while the content in the remaining subcategory was separated into the two subsections of the text.

The categories in which the participants' discourses were organised will structure the sections in chapter *5. Findings: experiencing and evaluating walkscapes* (starting on page 111). On the next page an entirely different topic is addressed; namely the ethical considerations of the study.

4.9 Ethical considerations

In this section, the ethical approval from the research ethics board will be detailed firstly, followed by a discussion of the ethical ramifications of this study.

Ethical approval

This study has been ethically approved by the Research Ethics Board of Universidade Federal do Rio Grande do Sul (Comitê de Ética em Pesquisa da Universidade Federal do Rio Grande do Sul) with CAAE number: 87650818.8.0000.5347 and Report number (Número do parecer): 2.799.540.

Ethical information to participants

Ethically, walk-along interviews have some challenges in common with other interview formats. The participant must be made aware of how the research is going to be made and how the interview will be used so that they can give informed consent. To achieve informed consent the participants were first sent information in advance via e-mail, both a summary of the most important ethical information as well as the full Informed consent form (see *Appendix A. Term of informed consent* on page 322). They also received information orally before the start of the walk. In the Term of informed consent one section detailed the research aim and another section specified how the walk-along interview is conducted.

Permission for recording

Before starting the interview, the participant needed to be made aware of what the research is about and how the interview data will be used so that they can give informed consent, including consent to be recorded (Degen & Rose, 2012). As the interview was audio- and GPS-recorded, the participants were explicitly asked permission for the recordings, firstly through introductory information by email, and then once again when meeting in person. Before the participants signed the informed consent form, they were asked if they had any questions. The participants consented to perform the interview according to stated terms by signing the Informed consent form before the interview started.

Anonymisation and data protection

For ethical reasons, the participants have been anonymised in the research. After the walk-along interview finished, the name of the interviewee was first replaced by a code to anonymise the results. All data was and is stored with high encryption and a long password to protect from unauthorized access, including backup copies. The original, non-encrypted voice recordings from the walk-along interviews (stored in the portable voice recorder) were deleted after that the data had been transferred to encrypted computer storage media.

Personal information

One risk for the research participants was if sensitive information was recorded while walking that they later regret. This risk has been combated through making it clear that the participant could withdraw from participation at any time, also after the interview has been made, and by excluding eventual sensitive, personal information from transcription.

Daytime interviews during good weather to minimise injury risk

All interviews were made during the day, i.e. with natural light. To minimise accident risks, walks were rescheduled when the scheduled day for a walk was rainy or very windy. The researcher has taken special care to comply with all traffic regulations during walking.

Third-party interaction

As the interviews are recorded in a public place, how to handle third persons encountered during the walk need to be thought about (Garcia et al., 2012). If a third person started to talk with us during the interview I informed the person that we were recording. In practice, this happened very rarely, only when someone said 'hello' to the participant. No conversations with a third party were transcribed.

Benefits

There was no direct benefit for the participants to be interviewed as part of the study. However, the participants were informed that the research results possibly could contribute towards better planning and design of urban walking environments in the future. A few of the participants commented afterwards that they liked participating.

4.10 Trustworthiness

The focus of qualitative research is to provide a thick description and understanding of the case that has been studied. As a consequence, other quality criteria are applicable in comparison to those for quantitative studies. According to Guba and Lincoln (as cited in Cohen and Crabtree, 2006), four criteria have been established for qualitative research: credibility, transferability, dependability and confirmability.

Credibility

Credibility is achieved when there is confidence in the research results. This means that the research results are in line with the views expressed by the participants in the study; in other words that the results are credible or believable according to the participants (Trochim, 2006). The main study has been conducted during a period of half a year, to give adequate time and room to orient myself towards how the participants situate themselves in relation to walking in their neighbourhood. Another way of gaining credibility was through the walk-along method characteristic of being an interview surrounded by an environment: I was able to observe both the behaviour of the participant and the interaction with the environment concurrently and could adapt follow-up questions accordingly.

Transferability

In the context of qualitative studies, transferability means to what extent the knowledge produced can be applied to other situations. It should be observed that qualitative studies to their nature are situated in a certain context, which means that generalisations to a wide array of other contexts are not possible, however, certain results from a qualitative study could be applicable to other situations in similar contexts (Ahlström, 2014). Transferability, to the extent it is possible, has been strived for through a thorough description ('thick' description in qualitative parlance) of the situation and context of the interviews.

Dependability

Dependability entails that the researcher is aware of and document the changing context in which the research is made, as well as the decisions made as a response to the real-life settings and situations that steer the research in new directions (Trochim, 2006). Dependability has been achieved through giving a thick description of the study and especially by continuously documenting the choices made and preliminary theories formed in a study diary.

Confirmability

Confirmability means that findings should be derived from experiences and discourses of participants. This means that the researcher needs to be sensitive in all stages of the research and try to understand what the participant intends to express while at the same time he/she needs to be observant to not impose his/her views on the material (Trochim, 2006). All results should be corroborated by the recorded transcripts (Trochim, 2006). Great effort has been dedicated to think and re-think categorisations, and also to review decisions taken after some time has passed. For a couple of interviews, some answers were unclear, and those participants were contacted again to get supplementary information. Another method has been to discuss interpretations of data with my advisor and co-advisor.

This concludes the methodology chapter. The next chapter, *5. Findings: experiencing and evaluating walkscapes* will address the outcome of the study, based on eight analytic categories the participants' discourses have been structured in.

5. Findings: experiencing and evaluating walkscapes

This chapter details the findings of the empirical study. The answers to the initial questions stated to each participant helped form eight categories, that structured the analysis of the free-flowing, main interview sections that substantiated the findings.

Firstly, in *Interview routes and discourses* (next page), the geographical routes of the interviews are depicted and the 17 interviews are summarised. Secondly, in the section *Categories* (p. 125), the organisation of the findings in three areas and the eight categories is detailed, as well as how the eight categories emerged from the participants' discourses. Additionally, the participants' answers to the obligatory introduction questions are categorised and the prevalence of each category in the responses is accounted for. Then follows the eight main sections, one for each category: *Green aspects* (page 143; synthesis on page 161), *Urban accessibility* (p. 162; synthesis on p. 180), *Physical feasibility* (p. 181; synthesis p. 202), *Place attachment* (p. 203; synthesis p. 215), *Safety* (p. 216; synthesis p. 228), *Social aspects* (p. 229; synthesis p. 242), *Health and wellbeing* (p. 243; synthesis p. 249) and finally *Accomplish task* (p. 250; synthesis p. 259).

5.1 Interview routes and discourses

The interview routes are shown below, followed by summaries of the interviews on page 116.

Interview routes

In the maps that follow the routes traversed during the walk-along interviews can be seen, but individual routes can not be discerned due to anonymisation. Figure 30 shows that 15 of the interviews were made in the Varberg town centre or just south of it. One interview took place in the 'Håsten' area and 'Brunnsbergsskogen' north-east of the town centre and another one in the suburb 'Trönningenäs' 5 km north-west from the centre.

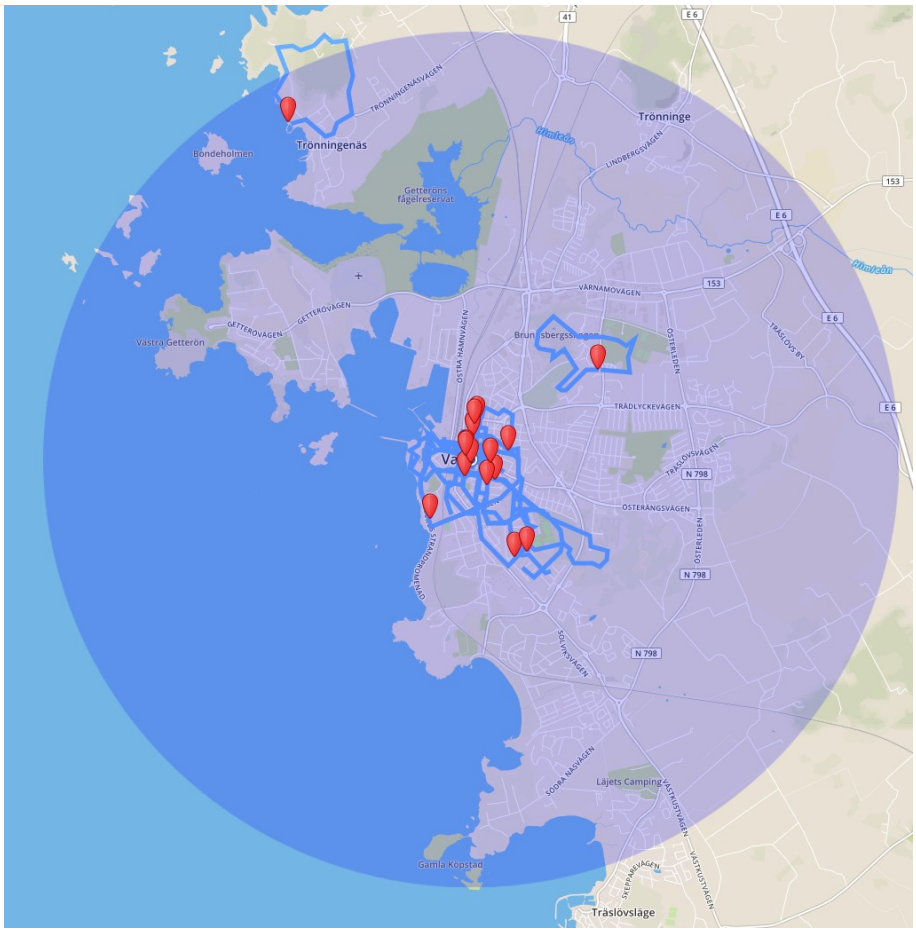

Figure 30. Overview of all 17 interviews. The circle has a 5 km radius, centre in the town core.
Source: Author.

The routes of the walk-along interviews were chosen by the participants. They were recommended to choose a walking route in an area of Varberg they were familiar with.

Figure 31. Map of the 15 walk-along interviews made in the centre or south of the centre of Varberg.
The blue lines show the routes, along streets or natural areas, that were traversed during the interviews.
Source: Author.

As can be seen in Figure 31, fifteen of the interviews were made in the centre or south of the centre of Varberg. This was mostly in an urban setting, with the exception for one full interview walking in a forest, as well as two interview routes that passed through both urban settings (the centre of Varberg) as well as natural settings (the seaside boardwalk along the ocean).

A zoomed-in map of the partial routes that traversed the town centre is shown in Figure 32, showing that almost all streets in the centre were traversed, and also that the park 'Engelska parken' and the area around the castle (both to the left in Figure 32) were visited in several interviews.

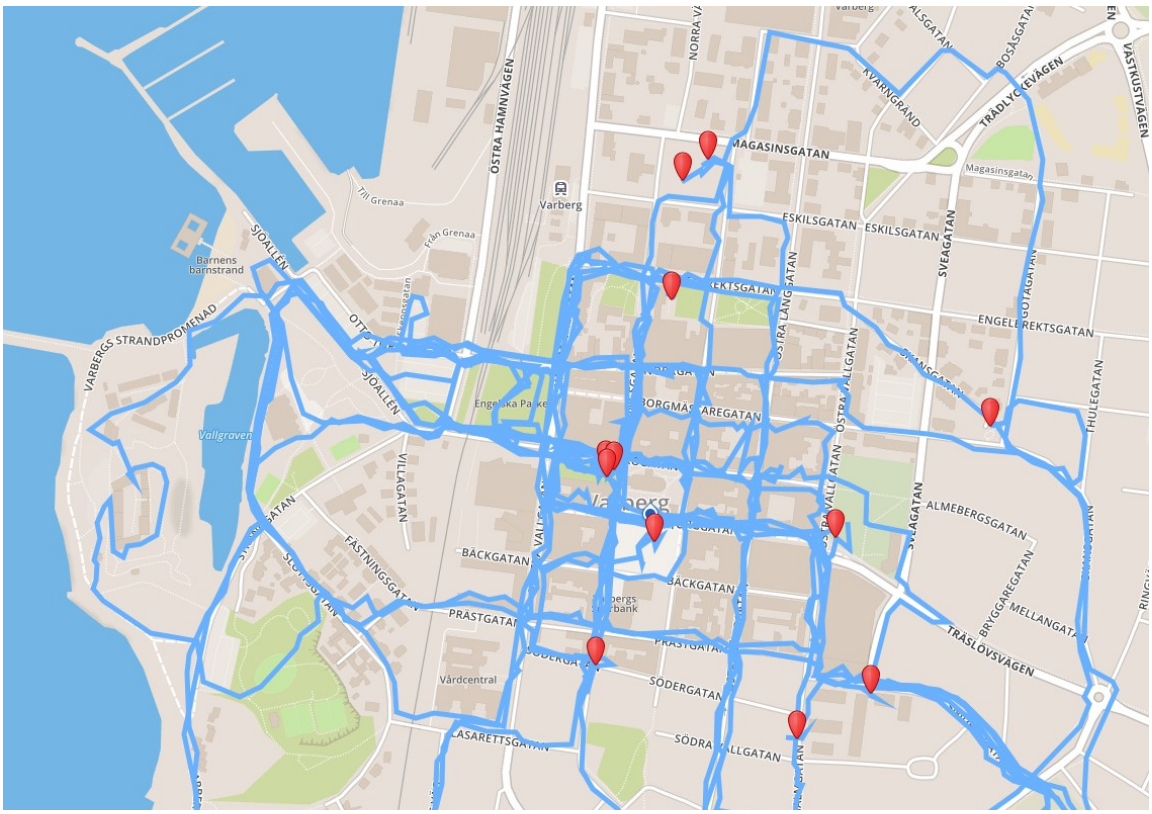

Figure 32. Routes traversed for the walk-along interviews in the town centre.
Source: Author.

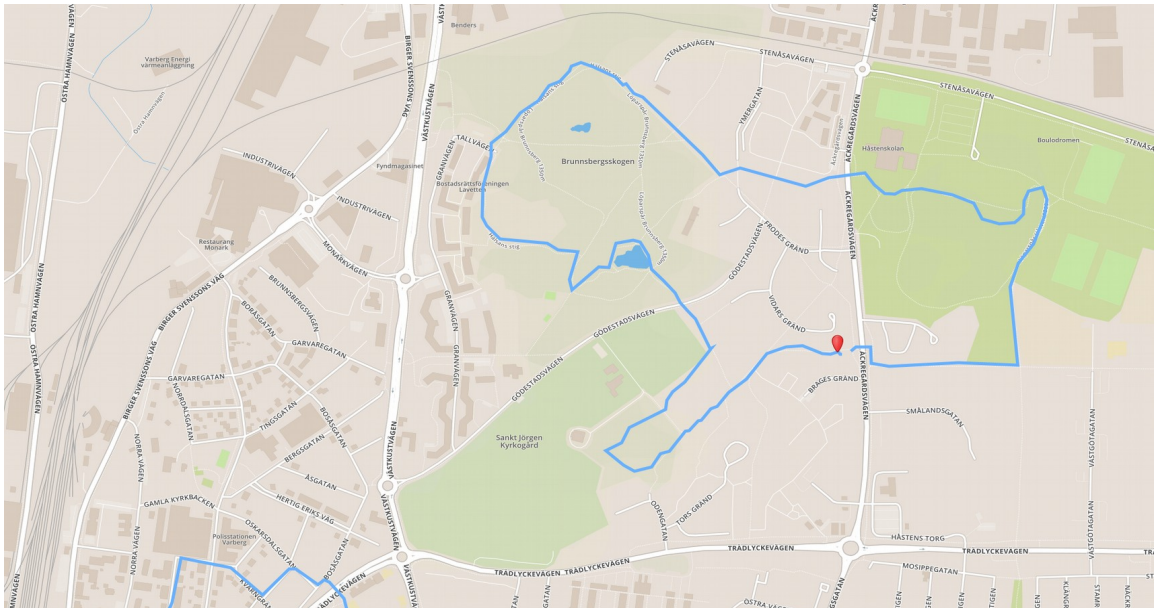

Figure 33. One walk-along interview was made in the 'Håsten' area and the forest 'Brunnsbergsskogen'.
Source: Author.

Figure 34. One walk-along interviewed took place in 'Trönningenäs' (a suburb).
Source: Author.

In Figure 33 (above) the one walk-along interview route in 'Håsten' is shown. 'Håsten' is a district north-east of (but relatively close to) the town centre, with low apartment buildings built in the 1960:s, with big gardens and a large natural area around. Finally, to the right, the one walk-along interview route in the Trönningenäs area 5 km north of the centre of Varberg is shown in Figure 34 (to the right). The Trönningenäs area is characterised by relatively sparse detached one-family houses situated near the coast.

Interview discourses

In this section, the seventeen interviews are summarised, one by one.

Interview 1: Conflicts between pedestrians and cyclists

Interview 1 focused on the conflicts and insecurity resulting from cyclists that invade sections of the streets that are reserved for pedestrians. The signage was described as unclear and lacking in logic, and the participant was afraid of being hit by cyclists. She said that traffic rules were not followed by cyclists. As a solution, she proposed more clear signage, and better separation between cyclists and pedestrians, for example through markings in the street. She had a wish for more carfree areas and found it messy to have to deal with many transport modes. Also between pedestrians and cars, she experienced conflicts; to alleviate this problem she wished for more clearly marked and signed pedestrian zebra crossings. She liked the central parks a lot, comparing one of them to an oasis; they were what she liked the most during the walk. She would like the parks to be bicycle-free oases (even though cyclists unfortunately ventured into parks in the current situation). The participant also liked that sea, forest as well as parks are close by in Varberg. Additionally, it was an advantage to have stores nearby, not needing a car to do shopping. Another opinion was regarding the densification with new taller buildings, which she did not like. Finally, she found the situation of pavements and streets problematic for use by people with physical disabilities, especially concerning irregularities in the surface as well as steep differences in level.

Interview 2: The quality of having good walking paths in the vicinity

The second interview took place along, and also discussed, a prepared walking path in a natural setting with good signage and maps. The participant liked to walk in the forest, she said that the forest protects from wind, rain as well as sun. She appreciated the walking path, as it has already prepared shortcuts for variation in walking bout length. However, she would have wished for more paper bins, as well as more benches. She thought that the municipality could make the inhabitants more aware of the walking routes that are possible to use. Her reason for walking was chiefly for health and wellbeing. She liked to get daily exercise

through walking and preferred to walk in nature. Habit and variation were recurring themes in this interview. It was seen as important to have walking possibilities close by to contribute to the force of walking by habit. She found it nice to have a habit; to walk the same route regularly. Walking in this manner was seen as undemanding in a positive way, to regularly have time for your self was an advantage. Through walking, she could follow the shifts in seasons and variation in nature. However, she would have liked to have better variation possibilities regarding choices of walking paths. Nevertheless, it was restful to walk instead of having to run and clock. According to her, walking was restful as you do not have to think; to have a habitual walking bout nearby, without any planning needed, lowering the required energy for making decisions or in other words the decision threshold. Variation was seen as important, for example through observing changes in gardens and flowers. The participant prioritised good physical signage and orientation maps on-site, on paper and in digital form.

Interview 3: The importance of public lighting for the feeling of safety

The third interviewee said that darkness is a limiting factor for walking in the winter, and also stated that there is a risk for assault when dark outside. Public lighting can help partly. She wished good lighting and not too many bushes and shrubs. She also said that it could bring feelings of unsafety to walk alone, especially when reading in the newspaper about what is happening. For example, she said that it can give a feeling of unsafety to meet "gangs" – groups of people. The interviewee had comments in several different areas. Regarding wintertime, ice and water was a problem for walking according to her. She liked to have variation – varied nature and varied walks and saw development and changes in nature as something fun to watch. For example, she liked to see how the leaves change colour; to experience nature. In general, she liked to walk in nature, especially in the forest but disliked walking on asphalt. She wanted to walk to disconnect from everything and have peace/calmness. Regarding information, the participant wanted to have good signage, distance indicators and maps, for example as tools to find new walking paths, as well as digital information.

Interview 4: Appreciation for accessibility and proximity in the town centre

The fourth participant appreciated the closeness and integration of the town core a lot. He found it very positive to be able to reach everything on foot. The town centre provided many qualities according to him, such as a pleasant environment with low houses, old buildings with small, unusual stores, pedestrianised streets and slow and little motor traffic. He also stated that the town centre has a nice mix and everything you need is available within five minutes walking distance as functions are integrated into the town fabric. Regarding the streetscape environment of the Varberg town centre, he said it felt nice because of preserved houses, natural light (due to the low scale of the buildings), views towards the ocean, presence of history as well as greenery. We walked along the 'Norrgatan' street where he commented that it provided street greenery, art and variation; in general, he appreciated greenery such as flowers and trees. The participant liked to walk with the dog in a natural environment. He also valued the proximity to the ocean which Varberg provides. Concerning the densification question, the participant said that it was valuable to preserve the old character, e.g. the wooden houses. On the other hand, it was good to build new apartment buildings in the centre. Some modern buildings are also allowed to exist, as he put it. One reason for new buildings was for safety; it would be good to have more housing in the town centre to have more people around walking during the evening and night. Regarding walking and social aspects, he also said that walking could be a way to meet and greet other people. Finally, some other remarks. According to the participant, the co-existence between pedestrians and car drivers is working. However, he did not walk along the 'Västra Vallgatan' street if he could avoid it, as there is quite a lot of cars moving on that street.

Interview 5: Varberg is not adapted to physically disabled

The fifth interviewed pointed out that there were several negative aspects regarding accessibility for those using wheelchairs to move around town. The interviewee stressed that there is a need to have bevelled edges with a low degree of inclination to be able to cross the street with a wheelchair. Protruding manholes could also be a hindrance. Asphalt was preferable as the surface material, but the asphalt was uneven and even had holes in some

places. Glass on the pavement as well as small stones in the sand put out to de-ice could also be problematic. For someone with a physical impairment, it could hurt to go in a wheelchair on uneven surfaces, e.g. small cobblestones, according to the interviewee. Regarding stone street surfaces, it was better with larger paving-stones than smaller cobblestones for wheelchair use. However, the bigger square stones (around 50 x 50 centimetres) could easily become uneven due to movements in the ground.

Interview 6: Better public lighting needed

For the sixth interviewee better safety was a key issue. To achieve safety, better public lighting was requested, as well as trimming bushes to avoid attacks from perpetrators. There should be space between trees; three to four meters would be good according to the interviewee. She made the point that keeping bushes small would make the outdoor environment safer. Additionally, public lighting should be abundant and of high quality. The light sources should be placed high so that you do not get blinded. The participant said that some light sources are problematic in this sense, as they are placed too low. Regarding the physical configuration this interviewee stated that too high kerbs can be a problem, they should be slanted in a low angle to facilitate movement. This is especially important in street corners, where you often want to cross the street. It would be preferable to have low differences in surface height here, she stated. In these crossing places, she pointed out something else that was problematic: lacking signage and street markings for crossings (no zebra markings existed along the route we walked in the town centre). She made the point that real zebra crossings were needed. Something else in need of better marking and signage was the separation between pedestrians and cyclists, she continued. For the street material, she did not like the medium-sized, dented stones/blocks as they were uneven and not comfortable to walk on. The participant preferred to have one wide pavement for walking on a single side of the street, rather than narrow pavements on both sides of the streets. In other topics, the participant liked and found it homely that old houses were preserved. She appreciated greenery and trees as cosy elements. The participant thought the 'Societetsparken' park, the old bath building ('Kallbadhuset'), the castle ('Fästningen') as well as the 'Engelska parken' park were the nicest elements in the Varberg town centre.

Interview 7: Improve safety through opening up environments and put up better lighting

The seventh interviewee asked for better public lighting. She felt unsafe walking alone in the evening when it was dark. To improve the situation, she said that the municipality needed to open up environments, to make them more transparent. This should be done through trimming bushes and improving public lighting. An added benefit could be to open up views towards the ocean. Additionally, street benches should be arranged and places should be decorated, for example with flowers and plants instead of big shrubs. The participant also wanted to protect existing green areas and greenery in the town. The interviewee appreciated the proximity to the ocean as well as open places (i.e. places with broad sightlines) in the town of Varberg. However, she did not like narrow streets. She usually walked to get exercise, preferred to walk in the forest but also enjoyed promenades along the seaside boardwalk ('Strandpromenaden').

Interview 8: A positive view of the urban morphology of Varberg

Interviewee 8 said that he liked to walk along the seaside boardwalk. He evaluated the accessibility for pedestrians in Varberg as good; the town is small, it is easy to get from point A to B and there are pedestrianised streets. The rectilinear street pattern as well as the through streets (rather than cul-de-sacs) made it easy to find your way and improved accessibility to destinations, he said. Another positive thing according to the interviewee was the low scale: in general, the building height is less than four floors. It is also nice to be able to look at old buildings, he said. The proximity to the sea is yet another advantage of Varberg, according to him. Regarding the physical configuration, the participant said that pavements had a generous width. He preferred to have pedestrians and cyclists on the same level, with a separating line in a contrasting colour. However, there should be a height difference to separate against the car lane. One problem in Varberg was that cyclists do not follow the traffic rules and are inconsiderate towards pedestrians. According to the participant, cyclists are prioritised higher than pedestrians. Regarding the whole traffic situation, he said that there are many traffic modes that need to co-exist in the town centre. Therefore it is preferable to have low car speeds there.

Interview 9: Variation and freedom of choice for walking in nature

The ninth interview was quite a long one, with many different topics covered. Physically, wide walking paths with gravel as ground materials were preferred. Also in this interview, it was pointed out that a problem exists in the cyclists' interaction with pedestrians. Near the walking paths, it was suggested to put up benches to facilitate interaction between people. It was said that promenades can give social exchange. Especially, it was pointed out that this was true when walking with dogs, because when the dogs socialise so do the persons that are walking with them. Walking was seen as advantageous in the context of Varberg as you can get to where you want quickly; the distances are short. You can get variation and freedom of choice, was another point made in the interview, for example through following a small path in the forest. To know possibilities and exercise this freedom, maps were found important both in physical form on-site as well as in digital form. It was appreciated to be able to follow the changes in nature, especially apparent during spring and autumn. Structurally there was a wish for more patches of carfree zones in the town. It was seen as problematic with the big car roads around the central areas of Varberg, which locks in the pedestrian in an "iron-curtain" as there are very few underpasses and zebra crossings. Health was seen as an important factor for walking. In the interview, it was said that to walk in the forest regularly can give calmness as well as lessen joint problems.

Interview 10: It is pleasant to walk in an old, preserved urban environment

Walking was experienced as a positively valued habit, that gives peace and calmness. The seaside boardwalk was seen as an attraction and catalyst for walking. Contrastingly, it was negative to walk on streets with a lot of car traffic. In this tenth interview, it was also pointed out that it is nice to look at old buildings and houses while walking. Public lighting and garbage collections were seen as important aspects; it was said that these aspects work well in Varberg. Other positive things were the benches along the walking path. The favourite season to walk was spring and autumn, when the town was calmer with fewer people around. Regarding pavement material, the preferred, first choice was grass, the second cobblestones and the third choice asphalt. Norrgatan was the favourite street with good pavement material as well as old, preserved buildings.

Interview 11: The importance of identifying oneself with one's town

In the eleventh interview, it was clearly stated that the on-going densification of Varberg is too radical and violent. The participant said that it is nice with old preserved buildings – they are important for identifying oneself and recognise one's home-town. This was the central theme and argument of the interview, but some other views were being expressed as well. Variation was seen as valuable, e.g. to see the shifts through seasonal changes. The participant preferred wide pavements on carfree streets or streets with limited car traffic.

Interview 12: Accessibility and negotiability of pavements central issues

In interview 12 the participant stressed the importance of accessibility and negotiability with crutches or wheelchair. To achieve universal access for everyone, chamfering of pavement edges were central. The pavement should have sufficient width, and preferably be made of asphalt, as this material was the smoothest. Existing pavements were problematic, as the pavement edges often were too high. Another difficulty was inclined pavements, which also made it difficult to move. The participant stressed the need for not only for streets to be accessible, but also for the ground floor of shops as well as other public ground floor uses. Here some criteria for well-adapted entrances and ground floors were presented by the interviewee: good ramps, handrails with good grip, automatic door-openers as well as accessibility information on-site. The most common flaws of shops were steps and doorsteps, which formed barriers for entry. The participant said that it was not nice to be dependent on help from someone else to access a shop. Finally, it was stated that many groups – e.g. people in wheelchairs and with small children – would benefit from increased accessibility.

Interview 13: Older, ornamented low-scale buildings help to connect to history

In interview 13 the central theme was the value of preserving old houses, streetscapes and environments. The interviewee appreciated old environments or environments with a mix of old and new. She wished for having an environment with buildings of three floors maximum, preferably wooden houses that are richly ornamented. According to her, to preserve buildings make you feel the tide of history. On the other hand, she said that you tend to forget changes (in the form of new buildings) after a while and they start to fade in.

Besides building preservation, greenery was also important to the interviewee. She liked leafy environments with greenery and flowers in the town centre, for example in the gardens you pass by.

Interview 14: Pavement material and configuration to make it easy to move about

Problems, according to interviewee 14, included high pavement edges and unevenness in the pavement material. For using an electrical wheelchair the best surface material was asphalt. However, in some cases, the asphalt can be uneven, with potholes. The long, narrow stones of granite were second best as they were even. Routes were chosen habitually, which means that usually the same routes were traversed from one time to another. Events and festivities, which occurred mainly in summer, were catalysts for the participant to come out and move more frequently on the streets of Varberg.

Interview 15: Connection with history in townscape important

The fifteenth interviewee liked to live centrally in Varberg, she said that it was nice to have proximity to everything: to forest, to sea and to a bigger city (Varberg is 40 minutes by train to Göteborg, the second largest city of Sweden). It was important for her to have a connection to history, or in other words to have a historic context in the urban environment of the town. Varberg was described as a pleasant town, with uniformity in building height and buildings that harmonise with each other. Streets have little car traffic, making them good for walks. Health and wellbeing was a reason for her to walk; walking provides free exercise as well as clear your mind. Other remarks were that it was nice with colour in the urban environment, such as façade paintings, and that information in the form of street signage and information boards/maps were important.

Interview 16: It is preferable with a variation and mix of buildings

For interviewee 16 a mix in the town environment was preferred: to have both old and new houses and different building styles. Therefore, older buildings needed to be preserved. The participant liked to observe changes from time to time as part of the walking experience, e.g. changes in streets, houses or gardens. However, she preferred to walk in natural environments. Trees and greenery were deemed important.

Interview 17: Facilitate social interaction by making meeting places

The key issue for the last interviewee was to establish cosy and pleasant outdoor seating opportunities as a sort of catalyst for making people socialise more. She made quite detailed suggestions for these proposed seating configurations. It was central that the seating groups were cosy, like a sofa corner in someone's home. Overall, the seating should have a feeling of being in a living room. It should be possible for several persons to sit around a table, to be able to talk naturally. (The current seating did not facilitate this, as you had to sit next to each other instead of in an angle.) Also, shelter from both rain and wind should be provided, so that you can take a thermos with you outside to drink coffee protected from the elements of nature. Lighting was another important component, according to the participant. She stated that both lighting and seating were lacking in the district of Varberg we walked through during the interview. During evenings and nights, it was dark. Façades were unsightly. There was a need for better seating as well as better public lighting, she continued. A nearby road we passed was described as being very wide, with a lot of traffic. She also stated that people drive rapidly on that road and that zebra crossings are missing. Social seating was a key issue for this participant. The reason for this priority was that she wanted to increase the perceived safety so that all age groups of people (children and elderly in particular) feel at ease to move and stay in the outdoor environment. Besides social seating, other activities such as outdoor gyms were seen in a positive light. Finally, the last interviewee stated that she liked to see the changes in nature during her walks.

5.2 Categories

This section intends to give a background on how the categories central to the analysis of the interviews have been formed and in what way they are defined. Firstly, the areas in which the categories have been organised are outlined. Secondly, each of the eight categories is presented on one page each, together with a list of detailed codes that make up an define each category. Finally, this section ends with a categorisation of the participants' responses to the obligatory questions, with diagrams in which the prevalence of each category can be seen. In the sections that follow after this one, each category will then be addressed in detail sequentially, starting with *5.3 Green aspects* (on page 143).

Areas in which the categories are structured

The three areas, which can be seen in Figure 35 are a) Physical environment, b) Social environment and c) Individual needs. These areas can be seen as the 'umbrellas' of the categories, referring to the aspect at-large they cater for. They can also be viewed as three different spheres that are connected to shape how walking is experienced and evaluated.

Figure 35. The three areas in which the categories are structured.
Source: Author

Each of these three areas and the categories within each of them will now be detailed, starting with 'Physical environment' on the next page.

Physical environment

In the 'Physical environment' area the categories **Green aspects**, **Urban accessibility**, **Physical feasibility** and **Place attachment** can be found, as can be seen in Figure 36. These four categories have in common that they are related to the interaction between the pedestrian and the physical environment, and do not have any predominant social component.

Figure 36. The 'Physical environment' area.
Source: Author.

Let us introduce these four categories briefly: **Green aspects** deal with how pedestrians relate to natural areas and green elements. **Urban accessibility** is about availability, proximity and connectivity to destinations and uses in the urban setting, one could say that it is connected to the convenience of walking. **Physical feasibility** has to do with walking as a physical practice: how easy and accessible it is to move with regards to materials and kerb heights for example. This category is especially related to the needs of people with disabilities with accessibility and universal access as related concepts. **Place attachment** is a kind of bond of identification and recognition that can be formed between a person and the built environment, related to the concept of sense of place. Building and townscape preservation are important aspects here.

Social environment

Figure 37. The 'Social environment' area.
Source: Author.

In the 'Social environment' area categories have been placed that both relate to interaction with other people as well as with the physical environment. A longer (perhaps somewhat more precise) alternate name for this area could be Socio-physical environment. In this area, there are two categories: **Safety** and **Social aspects**. The first of them – **Safety** – is about perceived safety as well as factual security during walking. It includes two main concerns, both having to do with other (unknown) people: safety from crime and safety from traffic. In contrast, the category of **Social aspects** covers the positive side of the social environment; it is about walking as a social activity. Here it is discussed how walking can be a vehicle both for being social and being alone; you can walk and meet people, but also choose to walk alone to be calm.

Individual needs

Figure 38. The 'Individual needs' area.
Source: Author.

Finally, in the Individual needs area the categories **Health and wellbeing** and **Accomplish task** are found. This area is about the effects of walking on the person walking; in other words, it is about walking as a means to achieve an immediate or long-term objective. In the first of the two categories in this area – **Health and wellbeing** – walking is seen from the perspective of feeling good and/or to stay fit and vigorous. The second area, named **Accomplish task**, is about walking as a means for achieving a more immediate goal, such as to run errands or do grocery shopping.

Category definition and structure

In this section, all the eight categories will be presented more in detail starting with **Green aspects** and ending with **Accomplish task**.

Green aspects

The first category – **Green aspects** – is about the relation between pedestrian and greenery, which includes both pure nature and more curated green elements such as parks. In Figure 39 to the right, you can see the eight codes for this category listed under the category name. The code ***Changes in nature*** refers to the joy of seeing species change gradually during the year, such as the colour shift on the leaves of on a deciduous tree. ***Greenery*** refers to green elements of a smaller size, such as street trees or a garden of a detached house. ***Park*** is quite self-explanatory: here the participants talked about how they liked to visit the different municipal parks in the town. ***Nature*** is a code for the connection to natural elements in general, without specifying any particular kind of nature. ***Forest*** is about the municipal forest areas in and around the town. ***Both forest and sea*** speaks to a quality that several participants enjoyed with Varberg: to both have the ocean and forest nearby. ***Go to ocean*** is simply the action of visiting the seaside, which is very close to the town centre of Varberg. Finally, ***Lack of variety and choices*** refers to that some participants wished more variation in possible walking areas, as it could be monotonous to walk along the same route each day.

Figure 39. The category 'Green aspects' and its codes.
Source: Author.

Urban accessibility

Accessibility is all about proximity and convenience to get to desired destinations. The category of **Urban accessibility** has seven codes. The first is ***Proximity of small town***; the participants appreciated to have many uses and destinations nearby as Varberg is a small town with a quite concentrated town centre. Walking was perceived by some to be ***Quicker than alternatives*** to desired destinations, such as when shops were so near that some evaluated it as unnecessary to get the bike for so short distances. ***Varberg is nice to walk in*** is a code connected to more general positive observations of a feeling of contentment of moving by foot in the town. ***Lack of information*** gathers observations that it is needed to have better guiding support and encompasses a range from physical signs and separation lines on streets to digital information. In the code ***Reserved walking spaces*** is included how the participants describe and evaluate the space that is designated to pedestrians in Varberg. ***Easy to park car*** has to do with the appreciation of having car parking facilities nearby and in the town centre, making it practical to park the car and continue the journey on foot. Finally, ***Calm town low car traffic*** is a code used for the participants' discussions on that Varberg has limited motor traffic which makes it more enjoyable to walk in the town.

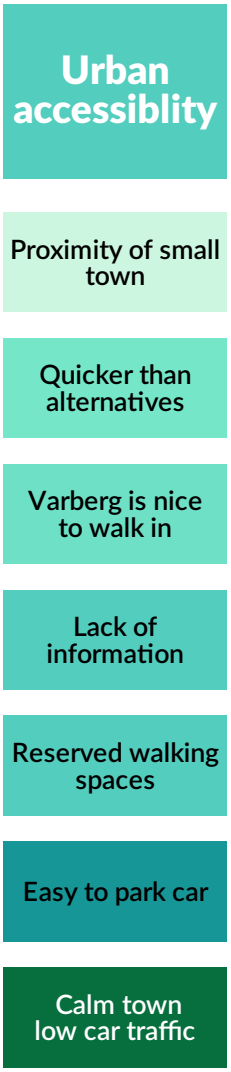

Figure 40. The category 'Urban accessibility' and its codes.
Source: Author.

Physical feasibility

Physical feasibility is about how our senses react to the physical environment, and with what physical comfort we can walk. In this category, the haptic sense is prevalent, besides the visual sense. The category operates on a zoomed-in level of materiality in the meeting between person and pavement, the effort to negotiate height of kerbs or snow and ice on the street. This category is especially focused on the needs of the physically disabled. It is connected to the concept of universal design, which has as an objective that environments should be designed to be usable for everyone.

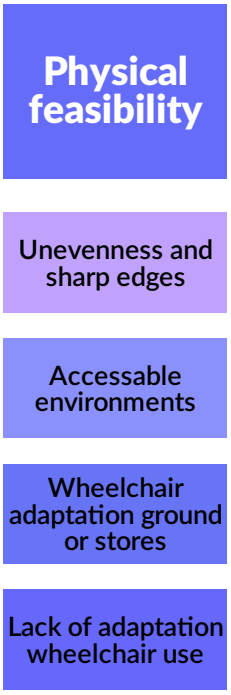

Figure 41. The category 'Physical feasibility' and its codes.
Source: Author.

Four codes belong to **Physical feasibility**: ***Unevenness and sharp edges*** refers to the problematic situations of high kerbs, that can be hard to negotiate, especially if you are using a wheelchair. ***Accessible environment*** contains critical analyses of the lack of universal design; there are many obstacles and limitations to overcome in the Varberg town centre. ***Wheelchair adaptation ground or stores*** contains similar discussions, but are more focused on concrete examples of the existing situation in distinct sites on the ground level, especially in the connection between street and store. Finally, ***Lack of adaptation wheelchair use*** treats other types of shortcomings in design in regards to wheelchair travel.

Place attachment

Place attachment is intimately connected to the feeling or sense of belonging with the local urban environment. To achieve place attachment a certain continuity of town- and streetscapes are needed. Therefore the code ***Preservation*** about how to keep old buildings in town is central. ***Identification*** relates to the participants' discourses on how they identify themselves and with their town and also recognise, recollect and relate to it. ***New modern high buildings*** treats the current densification process, where some participants articulate that these new developments are too high and too big, resulting in stark, unpleasant contrast with the surrounding townscape. Finally, ***See old houses*** is about the joy to observe and watch older buildings as you pass them by on walking tours in town.

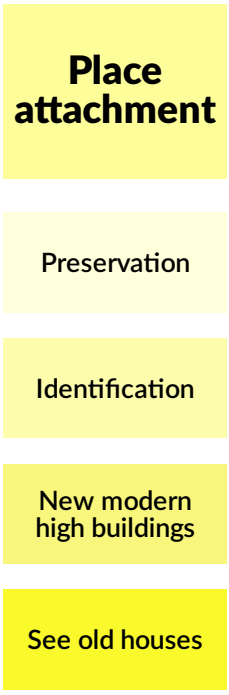

Figure 42. The category 'Place attachment' and its codes.
Source: Author.

Safety

Safety has two main aspects: safety from crime and safety from traffic. It is not only about factual security; perceived safety is also a key aspect of this category.

The two first codes have to do with safety from crime. The first code ***See-through places*** was given to interview excerpts about the need to have surveillance of your surroundings as you walk, and therefore to have sufficient sightlines. The second code is called ***Lack of lighting***; in some places, there was a need expressed for better public lighting night-time.

The other codes are connected to safety from traffic. ***Barrier of ring road*** relates to the fact that the ring road around the central districts of Varberg blocks easy access as the underpasses and zebra crossings are very far in between. The code ***Cars*** was placed on those conversations where it was expressed how motorised traffic puts limits on the feeling of ease and safety of the pedestrian. The next to last code ***Traffic works*** contains passages of the interview transcripts about how the road words current when the interviews were made can be a nuisance to the pedestrian. Finally, the code ***Bikes*** is important. In Varberg, it is common to use bicycles, but the cyclists are not seen so positively by some participants who pointed out that the cyclists sometimes dominate over the pedestrians, appropriating space that is reserved for pedestrians as well as not respecting zebra crossings.

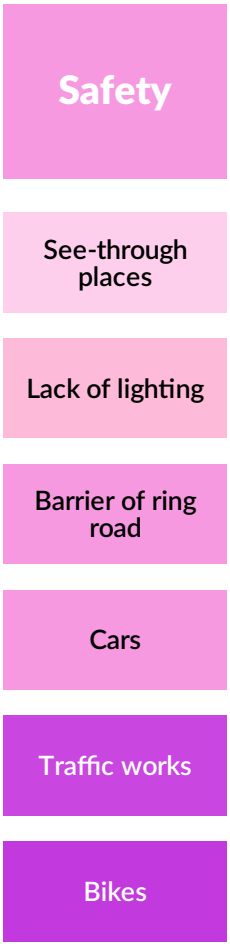

Figure 43. The category 'Safety' and its codes.
Source: Author.

Social aspects

The category of **Social aspects** addresses the social side of walking: mainly being about interaction with other people, who could be both old and new acquaintances. The first code, ***Go to market square***, treats the happening of the square in the very centre of Varberg, which has market days every Wednesday and Saturday, year-round. It is not only a commercial happening but also a traditional social gathering in place and time. ***Meeting people*** is a more general code about the social side of walking, related to meeting new acquaintances. ***Be with other people*** on the other hand is about walking together with people you already know. In **Social aspects** it was also decided to place the code ***Calmness***; about the wish expressed by some participants to walk alone, without bumping into other people. But back to the social side of the social scale, the last code is called ***Happenings in town centre*** and includes festivities that take place mainly in summer, such as outdoor concerts.

Figure 44. The category 'Social aspects' and its codes.
Source: Author.

Health and wellbeing

The category **Health and wellbeing** relates to physical health, psychological wellbeing and a general feeling of being at ease. Walking was seen by some participants as a way to feel good. This is reflected in the codes chosen to describe their discourses. Some said that regular walking cleans their mind, hence the code ***Clean mind***. The other code, named ***Health*** relates to the statements of how walking can improve health in general. To wander was also seen as a way to keep fit, reflected in the category ***To get exercise***. Some simply stated that they enjoyed walking, and their statements were categorised into the code ***Like walking***. Similarly, the last code contains statements on how it simply is ***Nice to get out***.

Figure 45. The category "Health and wellbeing" and its codes.
Source: Author.

Accomplish task

The eight and last category is named **Accomplish task**. It is related to how walking can help the participants with tasks and objectives, in the short as well as the long term. The first code ***Being able to shop*** relates to the possibilities that Varberg offers to make shopping, especially of groceries, by foot. ***Errands and shopping*** relates to all kinds of stores, not only food stores. ***Go to work*** was mentioned as something doable by foot, and forms the third code. To ***Walk the dog*** was seen by some as a way to get out and walk, a kind of enabler of daily exercise. The very last code was ***Go to gym*** where one can talk about accomplishing the objective of exercise dually: outside by walking to/from the gym and inside by exercising at the gym.

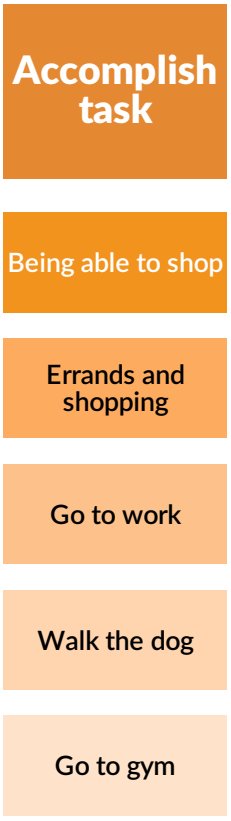

Figure 46. The category 'Accomplish task' and its codes.
Source: Author.

During the development of the category, an expanded list of tasks developed, in addition to those codified in the sub-items above. The objective of accomplishing a task was found to be connected to the *walking bout in itself* or to the *destination*. An example of the former is to get exercise, as it is connected to the walking bout in itself. On the other hand, to buy groceries is an example of the latter as it is connected to a destination (the grocery store). As a consequence of that many tasks were connected with the destination of a walk, an overlap with other categories also became apparent – especially with the category **Urban accessibility** as the possibility to accomplish a task which is connected to a destination is dependent on whether that (type of) destination is accessible or present in the urban surroundings. To form a coherent structure for this category of **Accomplish task** it was decided to cross-reference and summarise relevant passages from other categories.

Overview of areas, categories and codes

Figure 47 shows an overview of the three areas (first row), the eight categories (second row) and their codes (listed vertically under each category).

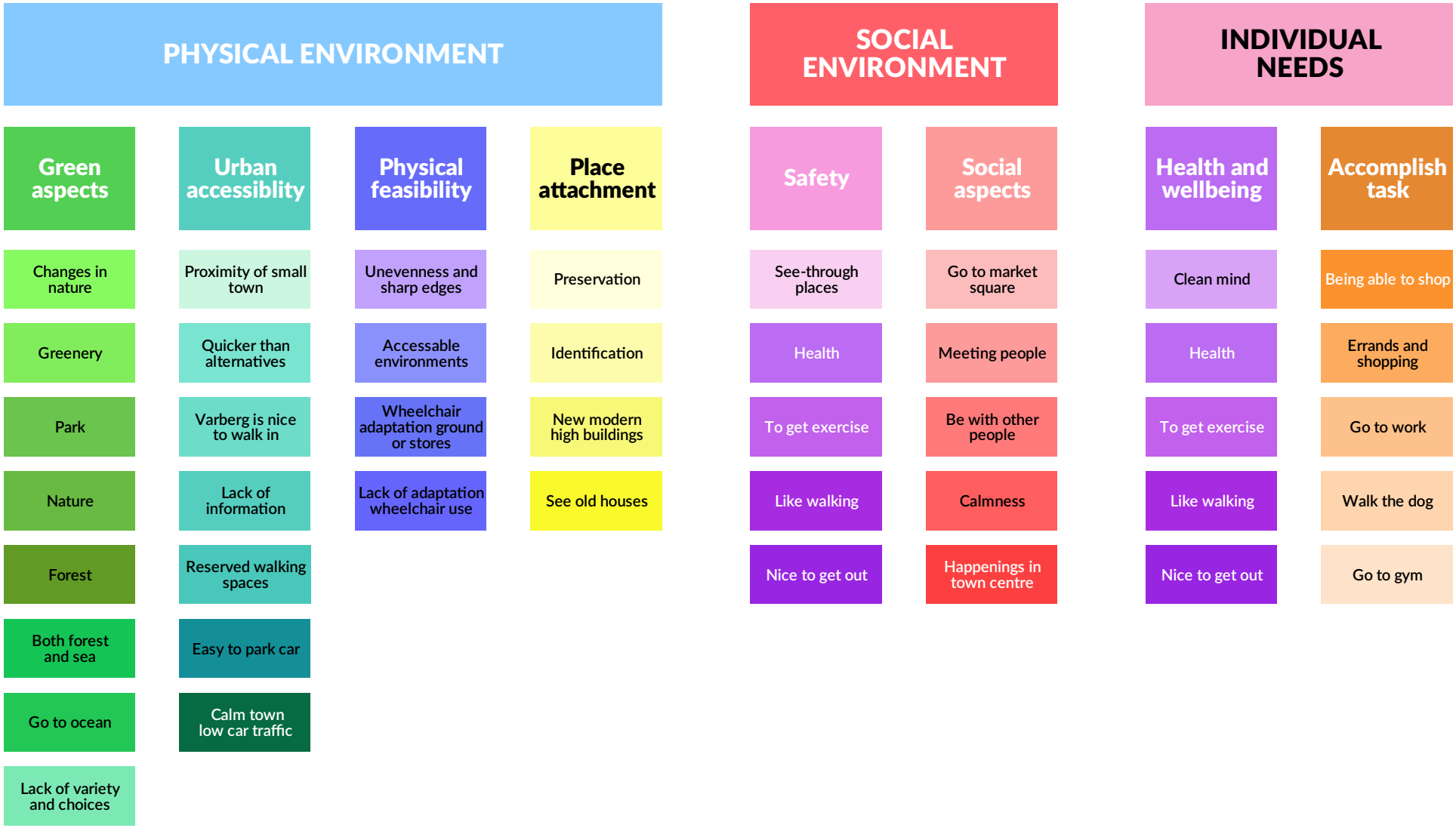

Figure 47. Overview of all areas, categories and codes.
Source: Author.

Categorisation of answers to obligatory interview questions

In the start of each interview, a series of questions were made. The categorisation[1] of the responses to them into the eight categories introduced earlier are presented here. The tables which the diagrams are based on can be found in *Appendix B. Tables for answers to introductory questions* (p. 325). Although responses could be attributed to all categories, **Green aspects** was dominant, especially for what in the outdoor environment made the participants want to walk more, and it was also together with **Urban accessibility** prevailing in responses on what interviewees found positive with walking in their vicinity. **Health and wellbeing** and **Accomplish task** were prevalent in answers to why participants chose to walk.

Q2)[2] What are the most common reasons you walk here?

The categorisation of the answers to the question "What are the most common reasons you walk here?" can seen in Figure 48, where it is apparent that the categories **Health and wellbeing** and **Accomplish task** are most prevalent.

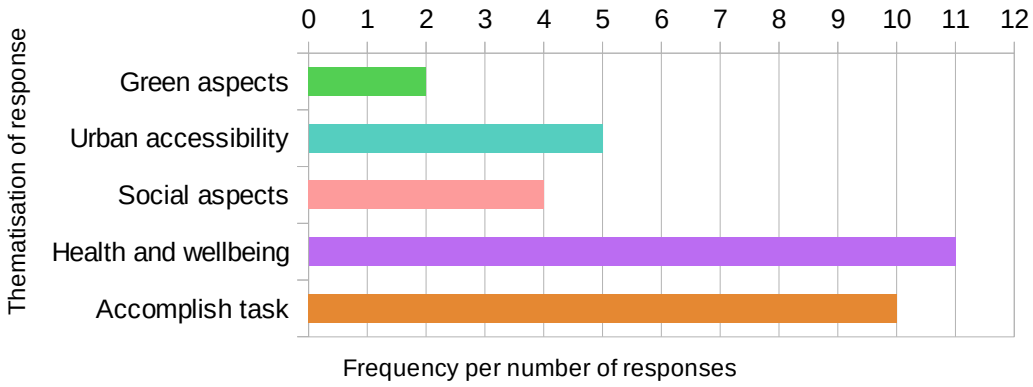

Figure 48. Q2) What are the most common reasons your walk here?
Categorisation of responses. Each participant could answer freely and give multiple responses. These responses were afterwards analysed and categorised into the seven categories. (N=32; n=17).
Source: Author.

1 The preparation of and formatting of the data and the tables have been completed under the supervision of Dr Jandyra Maria Guimarães Fachel and Gilberto Pereira Mesquita at the statistics advisory centre "Núcleo de Assessoria Estatística" at Universidade Federal do Rio Grande do Sul. In the diagrams "Number of responses" is abbreviated as "N" and "number of interviews" as "n". Each participant could give multiple responses to each interview question.

2 The responses to Q1) = question 1has already been accounted for in the Methodology chapter.

Q3) What is positive with your neighbourhood regarding walking?

Green aspects and **Urban accessibility** were the most common categorisations of what is positive with walking in the participants' neighbourhoods in regards to walking:

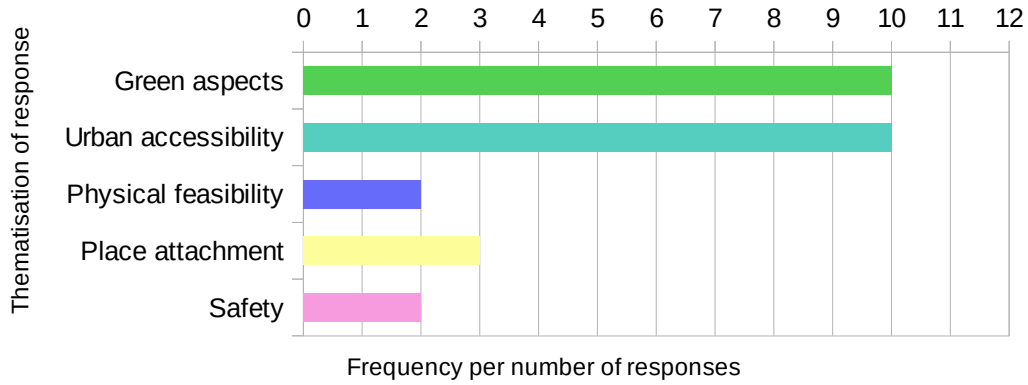

Figure 49. Q3) What is positive with your neighbourhood regarding walking?
Categorisations of responses. [Multiple responses permitted.] (N=27; n=17)
Source: Author.

Q4) What is negative with your neighbourhood regarding walking?

On the other hand, **Safety** and **Physical feasibility** were the most prevalent negative categories:

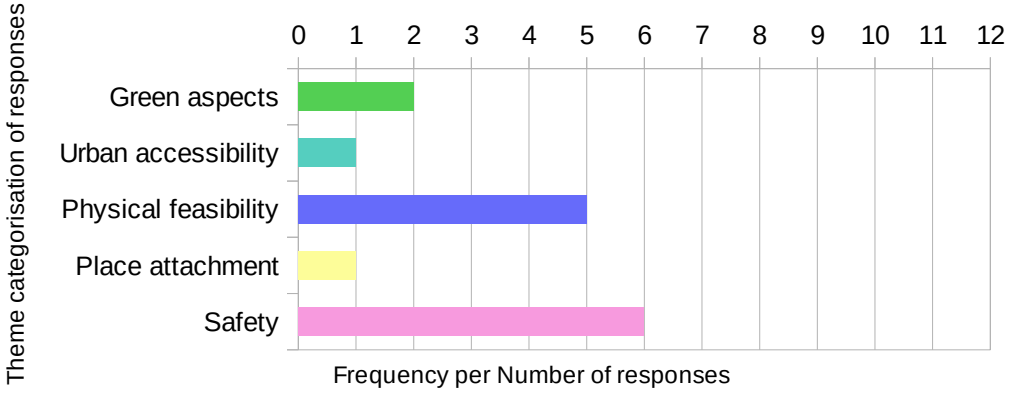

Figure 50. Q4) What is negative with your neighbourhood regarding walking?
Categorisation of responses [Multiple responses permitted] (N=27; n=12)
Source: Author.

Q5) Can you tell me why you chose to walk precisely this route?

The answers to this question relate to the specific and unique route for each walk-along interview and are therefore described in text below.

Green aspects

→ Varberg provides both pulse and quiet and the centrally located park is like an oasis.

→ Variation was wanted; a longer forest route was chosen (to not repeat a shorter route)

→ Appreciation was expressed for walking along the sea.

→ It felt nicer to show the possibility to wander in the forest than stroll on shopping streets.

Urban accessibility

→ The walking route on a central street was appreciated as it had a lot to offer, such as cafés.

→ Choice of walking route to provide variation: from town core, via the outskirts to the castle.

→ It was appreciated to have a mix for example of park and townscape.

→ To be able to see the castle, shop at a special store and visit the nice park along the same walk

Physical feasibility

→ To show the problem with the physical state of the streets when using a wheelchair.

→ To explain the limited negotiability of streets for people with physical impairments.

Place attachment

→ Houses on the 'Norrgatan' and 'Kyrkogatan' streets (with many old houses) were liked.

→ To see detailing, art, buildings and places, preferably that connect to the town's history.

Safety

→ → Two participants wanted to show the blurred lines between where to walk and where to bike, and how this created problems, such as how cyclists could invade walking paths.

Social aspects

→ To show the potential of more social seating places in the natural and built environment.

Other answers

→ Could not tell any reason for choosing the route we walked during the interview.

→ Route choice was automatic and free-flowing without any special reason.

Q6) What in the outdoor environment makes you choose to walk more?

The categorisation of answers to the question 'What in the outdoor environment makes you choose to walk more' shown in Figure 51 made it clear that the category of **Green aspects** was very dominant with 10 responses. The second most prevalent category was **Health and wellbeing** and had five responses.

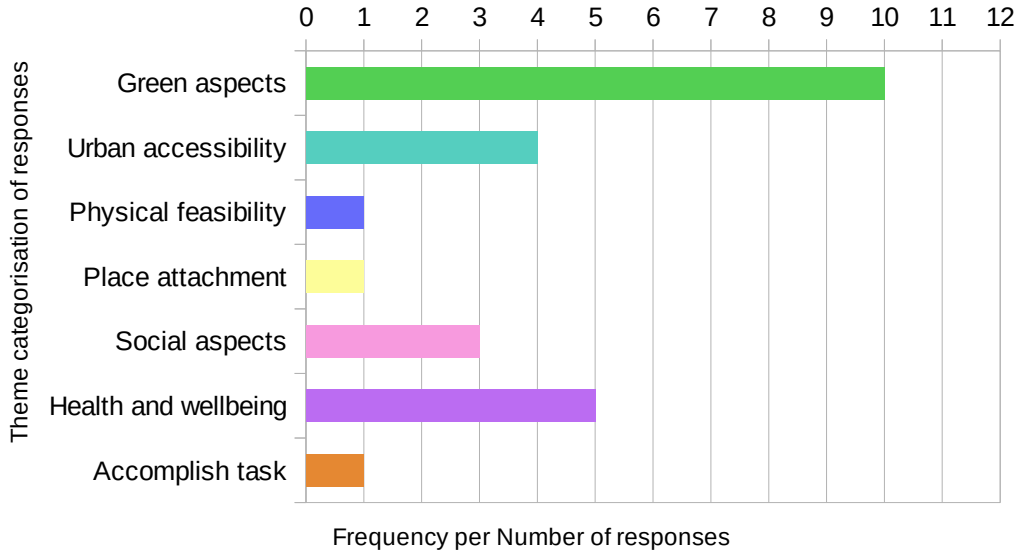

Figure 51. Q6) What in the outdoor environment makes you choose to walk more?
Categorisation of responses [Multiple responses permitted]. (N=25; n=17)
Source: Author.

Q2), Q3), Q4) and Q6) combined – analysed per response

The answers to four questions were analysed together. The four questions and the result, analysed per response, is shown in Figure 52. Responses related to the categories **Green aspects**, **Urban accessibility** and **Social aspects** were the most prevalent among the combined answers to the four questions.

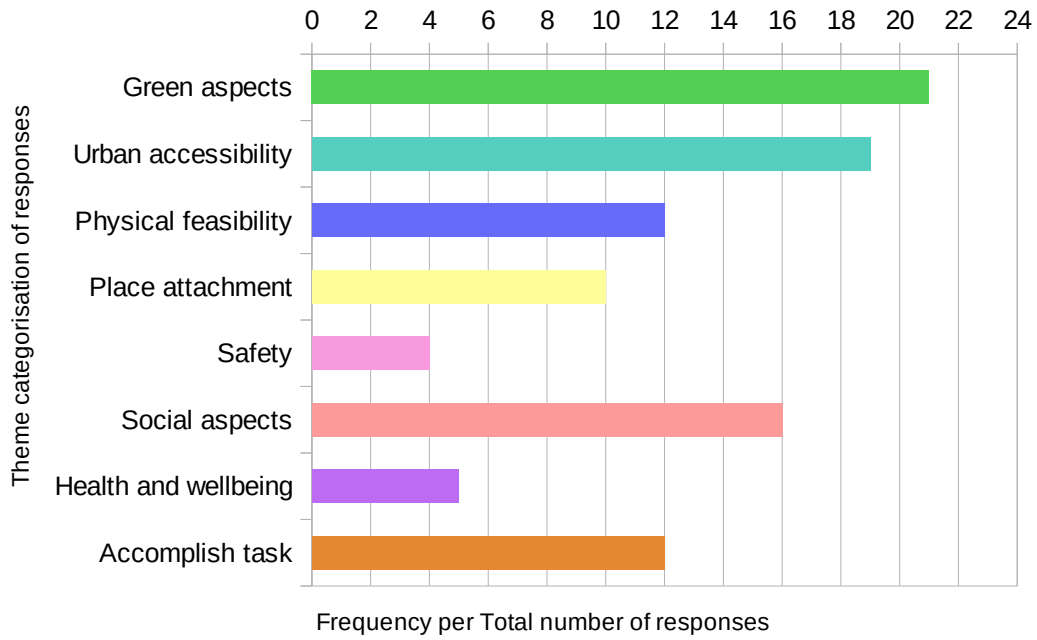

Figure 52. Q2), Q3),, Q4) and Q6) combined per total number of responses.
Categorisation of responses to the questions:
* What are the most common reason you walk here?
* What is positive with your neighbourhood regarding walking?
* What is negative with your neighbourhood regarding walking?
* What in the outdoor environment makes you choose to walk more?
Frequency per Total number of responses. [Multiple responses allowed.] (N=99; n=63)
Source: Author.

Q2), Q3), Q4) and Q6) combined – analysed per interview

The same combination of four questions was also analysed per interview. Figure 53 shows in how many interviews where at least one response exists that could be categorised to a certain category. Responses that fell in the category **Green aspects** were most prevalent across interviews; the category was present in 13 of 17 interviews in total. **Urban accessibility** was a close second, present as categorisation in 12 interviews. **Health and wellbeing** and **Accomplish task** are tied for third place, present in 11 interviews each.

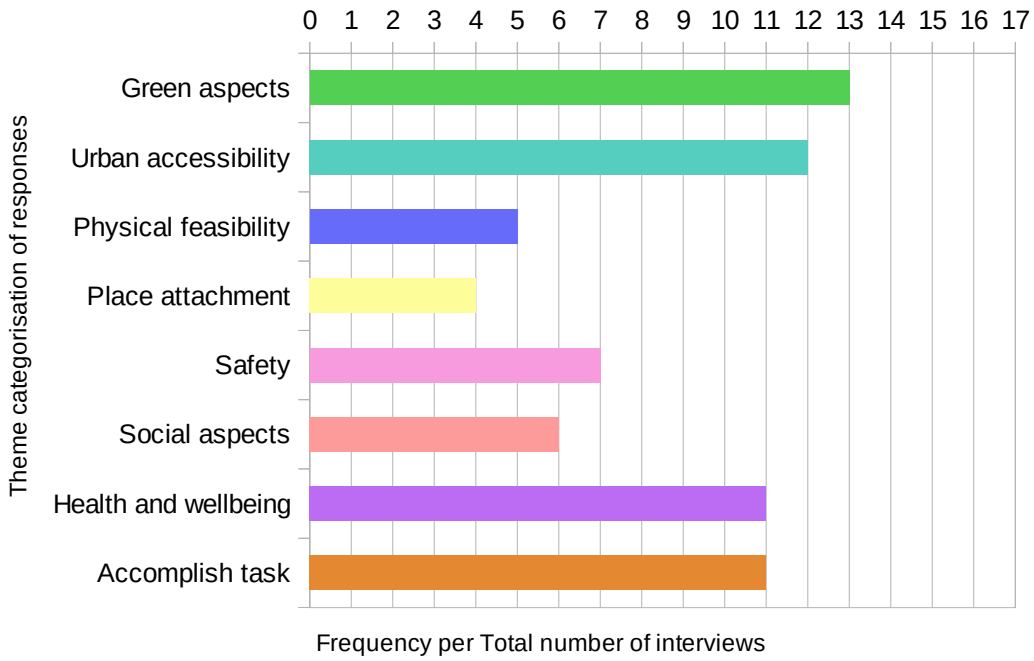

Figure 53. Q2), Q3) , Q4) and Q6) combined per total number of interviews.
Categorisation of responses. The chart shows in how many interviews each category was present in at least one response to any of the four questions:
* What are the most common reason you walk here?
* What is positive with your neighbourhood regarding walking?
* What is negative with your neighbourhood regarding walking?
* What in the outdoor environment makes you choose to walk more?
Frequency per Total number of interviews. [Multiple responses allowed.] (N=69; n=17)
Source: Author.

5.3 Green aspects

In the introductory part named *Formation of the category* (below), a contextual definition of **Green aspects** as a category is made, after which the responses the participants made to the introductory questions are discussed and associated with eight codes. These codes assist in structuring the findings, which are detailed on page 148 and onwards, and are based on what the participants said in the free-form parts of the interviews. The places they talked about can be cross-referenced with the map in Figure 21 (on page 89). This section (like the others) ends with a brief synthesis of the category (on page 161).

Formation of the category

Definition

This section entails walking linked to **Green aspects**, which include several different types of green elements in and around an urban area. These can be partitioned into first urban greenery and second nature. Urban greenery includes the small scale, such as trees, plants and flowers inside the urban perimeter. Also, urban green elements of a larger scale (i.e. parks) are included. For natural areas, Varberg offers two main categories: sea and forests. These natural areas are linked to the town but form more independent areas where natural life is left freer to grow and change.

Introductory answers related to Green aspects

The participants answered the same free-form questions at the beginning of their interviews and could state multiple responses. Responses to question 2, 3, 4 and 6 were suitable for categorisation and coding. In Table 1 (next page), responses placed into **Green aspects** are detailed, sorted into eight codes (originally introduced on page 128). The first code, ***Changes in nature*** is about shifts and dynamics of nature, for example through seasonal transitions. ***Greenery*** details urban greenery such as trees on town streets. ***Park*** is about urban parks, and ***Nature*** about natural areas that can be reached from the town. ***Forest*** is

specifically about forests and their walking paths, while ***Both forest and sea*** speaks about the advantages of having two types of nature near. Thereafter comes ***Go to ocean*** which is about walking along the sea in specific. Finally comes the small code ***Lack of variety and choices***.

The codes have been re-used as subcategories to structure the interview keywords (see Table 2 on p. 147) and as subsections to structure the following text, except for ***Lack of variety and choices***; this code has been integrated into the subsection *Changes in nature*.

Table 1. Distribution of responses to introductory questions belonging to the Green aspects category.
Source: Author.

Introductory questions	**Responses within category Green aspects**									**Grand total** for all categories
	Changes in nature	***Green-ery***	***Park***	***Nature***	***Forest***	***Both forest and sea***	***Go to ocean***	***Lack of variety and choices***	**Total** (% of grand total)	
2. Which are the most common reasons that you walk here?							**2**		**2** (5 %)	**41**
3. What do you think is positive with your vicinity area in regards to walking?		**6**				**4**			**10** (33 %)	**30**
4. What do you think is negative with your vicinity area in regards to walking?								**2**	**2** (11 %)	**19**
6. What in the outdoor environment makes you walk more?	**4**	**2**	**1**	**2**	**4**				**13** (46 %)	**28**
Total	4	8	1	2	4	4	2	2	**27** (23 %)	**118**

On the question *Which are the most common reasons that you walk here?* two responses could be placed in the category of **Green aspects**. Both were associated with the code ***Go to ocean***; in one the beach was mentioned as a destination for walking. In the other, the seaside boardwalk and the proximity to the sea were stated as positive factors for walking in Varberg.

On the next question, *What do you think is positive with your vicinity area in regards to walking?* there were in total 10 responses on **Green aspects**. For six responses the code ***Greenery*** was chosen. Three participants appreciated the municipal parks, two of them likened them to oases. Another one liked the variation in nature and to look at gardens and flowerbeds. Someone else also liked to see flowers and plants, as well as having views towards the ocean. One interviewee liked to have green urban elements. The other four responses to the same questions were marked with the code ***Both forest and sea***. All these four interviewees appreciated having both forests and the ocean close by.

In answering *What do you think is negative about your vicinity area in regards to walking?,* two participants' responses were associated with the **Green aspects** category on this question. Both were sorted in the code ***Lack of variety and choices*** as the two participants said that the walks could become monotonous, with few paths to choose from.

On the question *What in the outdoor environment makes you walk more?,* 45 per cent (13 of 28) of the responses were associated with the category **Green aspects**. The responses were distributed in five codes, which now will be detailed. ***Nature*** is a code for those two interviewees that stated that nature encouraged them to walk more (without specifying nature type). The responses of four persons were labelled with the code ***Changes in nature***. They were fascinated with observing how nature evolved, for example how flowers blossomed and seasons gradually moved from one to the other. The two answers within the code ***Greenery*** were appreciative of experiencing greenery in general, mostly in an urban context. Within the ***Park*** code, one participant said she enjoyed walking and sitting down in the park. Finally, the four responses coded with ***Forest*** specifically appreciated walking in the woods. For example, one person explained that walking in the forest made her them feel better and another one liked to hear the birds and see how nature grows there.

Methodology of finding relevant interview excerpts

The next step was to interpret the discourses in the free-form, main interview parts. To find relevant passages on **Green aspects**, all 17 interview transcripts were repeatedly read through and the passages found that were linked to the category at hand were marked in green colour. A computerised keyword search was prepared to find additional relevant interview excerpts. Words that occurred repeatedly in the text found manually read through were tested for suitability as keywords, and those that worked best were selected. The keywords that were uttered in a relevant meaning and context in the interview transcripts were selected, and the text around them was analysed. The methodology described here has been used similarly for the seven other categories that will be described later in this chapter.

Keywords in interviews

The keywords used are listed in Table 2 (next page), which also shows how many keywords have been uttered within the context of this category in each interview and in total. In Figure 54, the keyword frequencies are shown in a pie chart diagram which illustrates that keywords in **Green aspects** were used in almost all (16 of 17) of the interviews.

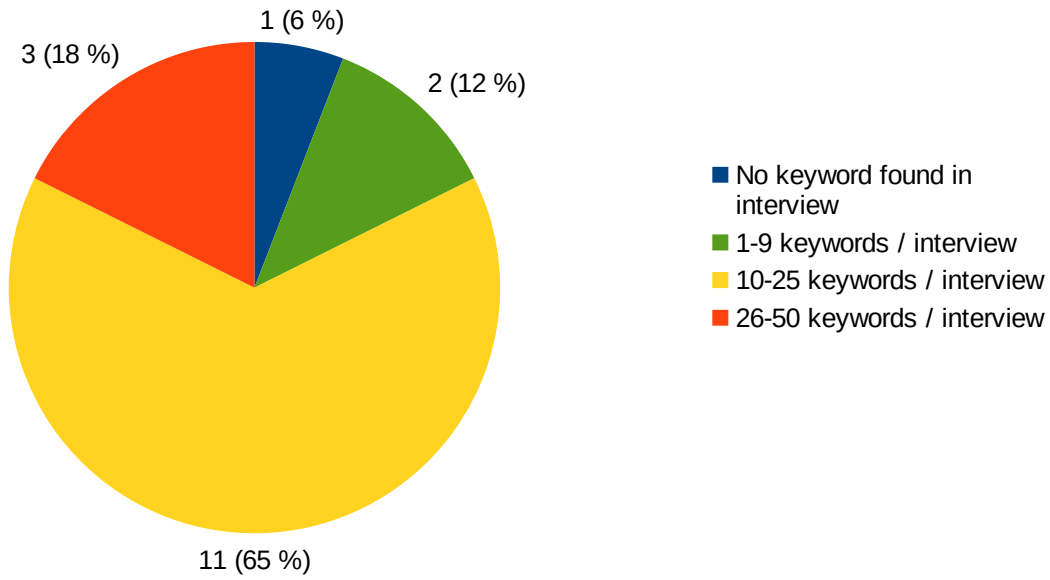

Figure 54. Frequency of keywords used in a context of 'Green aspects' found per interview.
Source: Author.

Table 2. Number of keywords per interview uttered within a context of the category 'Green aspects'.
Source: Author.

Subcategory	Keyword	Total # of interviews with keyword in relevant context	# of keywords in relevant context, separated by interview *(interview number)*																	Total # of keywords in relevant context	Original keyword in Swedish
			(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*	*(8)*	*(9)*	*(10)*	*(11)*	*(12)*	*(13)*	*(14)*	*(15)*	*(16)*	*(17)*		
Changes in nature	shift	3		2						1								1		4	skift*
	season	2		2									1							3	årstid*
	change	3		1							2		1							4	växl*
	variation	4		7	3								7					4		21	vari[a/e]*
Greenery	green	9	5		1	9		2	1		4	1			11				1	35	grön*
Park	park	14	10	1		1		7	1	2	4	2		5	8	1	4	5	1	52	park*
Nature	nature	10		6	4	1					8	2		1	2		2	5	2	33	natur*
Forest	forest	11	2	19	2				1		18	2	1	2			3	6	5	61	skog*
Go to ocean	sea	11	3	3	3	8			2	6	6	4	6					5	3	49	hav*
	boardwalk	10	2					1	2	11	5	4	2	4			2	2		35	strandpromenad*
	beach	7			1			2		1	3			1			2	1		11	strand*
Lack of variety and choices	tedious	2		1	1															2	enformig
Total			22	42	15	19		12	7	21	50	15	18	13	21	1	13	29	12		

Nature in general

This minor subsection includes comments about nature in general, without reference to any specific nature type. To have nature close by was something spontaneously mentioned in two interviews as an advantage; for example, it was said that "it is one of the advantages of living in a small town that it is near from centre to nature". Three persons said impromptu that they liked, enjoyed or preferred walking in nature. Two others thought that walking in nature offered calmness to them. As a part of her answer to the question on what were the most common reasons for her to walk one of those two participants said: "to get that calmness".

Changes in nature and variation

This subsection includes three subjects. The two first correspond to the code ***Changes in nature*** in Table 2 presented on the previous page. 'Changes in nature' is the first subject, which regards what participants had to say about changes in nature, e.g. seasonal changes. Second is 'Variation', which deals with both variations in form of different types of greenery to look at during the walking route, as well as variation in different walking routes to take to get distinct green experiences. The third subject deals with the absence of variation in walking routes and corresponds to the code ***Lack of variety and choices***.

Variation along the walking route and in route choice

Several interviewees valued to have many choices in paths to walk. They wanted to be able to see different types of nature, or different types of urban environments, along the walking bout. As one participant said, when there is good variation it is possible to build many different walks. For example, one can stroll across the town centre and then see the view towards the ocean opening up. This need for variation along the walking routes was expressed in different ways; one participant wanted to see small cottages, the ocean and then houses and another participant liked to have a choice of routes, both walking paths in natural settings and urban milieus. It could also be to have three routes to choose from as

was said in yet another interview or to walk clock- or anti-clockwise along the same route as another participant found useful for basic variation. To be able to choose between many different streets to walk on in a mesh of streets was also valued by one interviewee.

Changes in private gardens

Three interviewees liked to see the gardens of the detached housing lots they passed by whilst walking. They liked to see how the flowers and the plantations changed, as that gave variation to the walk. To see how flowers develop in spring, or how gardens change when their houses receive new owners contribute towards a more stimulating stroll.

Shifts and seasonal changes in nature

To observe the gradual changes due to seasonal transitions was something appreciated during treks on foot, as commented by four of the participants. Some examples included to see the gradual change of the colour of leaves in autumn, fruit trees developing, or the blooming of flower buds and the development of plants. To be able to photo-document a tree during a walk made it possible to follow the seasonal change for one interviewee. Dynamics in nature could also be about fauna, besides flora. One participant liked to see and hear animals such as squirrels, birds and deer during her walk.

Lack of variation and choices

Two participants said that they would have liked to have more choices in walking paths; it could be tedious with only having a limited choice as you would walk more or less the same path every day. For example, one of them explained that it would have been nice to have different small paths or shortcuts to choose from for walks not to get so tedious. She continued saying that it can be quite boring with walks, as you tend to repetitiously walk the same route and at the end of the run that becomes dull.

Urban greenery (except for parks)

Five participants commented how the liked greenery in the town, either using a general word for greenery or about specific categories such as trees, plantations, flowers and plants.

Figure 55. Urban greenery thanks to a private garden.
Photo: Author.

One participant likened the trees by the square to a "green lung" of Varberg. She also liked private gardens (such as in Figure 55 above) as their greenery make you feel close to nature and provide nice surroundings. She also enjoyed other streets/places with trees, such as the old cemetery. Another participant liked the combination of the square with greenery and trees, saying that it made him feel that Varberg is a really nice town to walk in, and also liked the atmosphere created by private gardens with apple trees. A third interviewee enjoyed a small green place with an 'insect hotel' (Figure 56 to the right), which informs about the ecological value of insects.

Figure 56. An 'insect hotel'.
Photo: Author.

Parks

Figure 57. Path in the 'Engelska parken' park.
Photo: Andrew Carvalho, 2019. (Used with permission)

A positive view of parks in general

Parks were cherished urban elements of Varberg. In close to half (8 of 17) of the interviews, the participants spontaneously said something positive about either a specific park or about parks in general in Varberg. Three participants made comments in general about the parks of the town, saying that they liked the parks or that it is positive with the parks. Two of them said that parks were like oases in the town.

The 'Engelska parken' park

In Figure 57 (on the previous page) 'Engelska parken' can be seen, which is a park characterised by meandering walking paths, a small brook and public seats. During summer the plantations offer flowers rich in colour and scent. It is situated in the town centre, adjacent to 'Brunnsparken', the shopping centre 'Galleria Trädgården', a railway crossing towards the other park 'Societetsparken' and the small park 'Järnvägsparken' leading to the railway station.

'Engelska parken' was the most appreciated park in the interviews; in more than a third of the interviews (6 of 17) participants made positive comments about it. They said things such as that 'Engelska parken' is a nice park, is very nice, lovely, beautiful, cosy or simply a park that the participant likes. It was commented that it is peaceful to sit down in this park as well. It was an example of a park as an oasis with its trees, flowers and shadow; somewhere you can relax as one participant said. Someone else said that it was cosy, a place to sit down with your family members and enjoy eating ice-cream and watch the trees.

The 'Societetsparken' park

In the centre of the 'Societetsparken' park the preserved 'Societetshuset', an elegant old building that now houses a restaurant (see Figure 58 below) is situated. The park 'Societetsparken' offers a rose garden and paths that in summer are surrounded by flowers, as well as an outdoor stage together with tennis and miniature golf courts. For 'Societetsparken' three participants made positive comments of the same type: such as that they like the park, that it is beautiful or really good. In specific, the rose beds were appreciated by one of them. Someone else commented that she liked to have a mix of town and park, and found Societetsparken splendid. Directly attached to Societetsparken is a municipal playground for children named 'Spökitetsparken', which one interviewee described as being nice. In Figure 59 (on the next page), the park can be seen in a winter setting.

Figure 58. The 'Societetshuset' restaurant in the 'Societetsparken' park.
Photo: Gunnar Larsson, 2007. (Creative Commons BY-SA 3.0)

Figure 59. The park 'Societetsparken'.
Photo: Author.

The 'Brunnsparken' square/park – remodelling made with mixed reviews

The name of 'Brunnsparken' means literally 'well-park'. In the 19th century a well-house that provided the town with water used to be situated here. Although the place has 'park' in its name it is in practice a hybrid of a square and a park. The only negative things said about parks in the 17 interviews were in regards to 'Brunnsparken'. It was recently remodelled, before it had more trees but know the place is dominated by the stone pavement material.

'Brunnsparken' is seen before remodelling in Figure 60 (above on the next page) and in its current state in Figure 61 (below on the next page). Two interviewees were critical of this remodelling and thought there was too much stone and too few trees there. However, one interviewee expressed that the place had become much lighter after the remodelling.

Figure 60. The 'Brunnsparken' park/square before remodelling.
Photo: Google Streetview (2010). Photo from early autumn (September).

Figure 61. The 'Brunnsparken' park/square after remodelling
Photo: Author (2019). Photo from winter (January).

Forests

There were several reasons to appreciate walking in a forest setting according to those participants that did so regularly. One positive aspect was having high accessibility to a forest, both in the sense of physical distance and in the sense that the forest was always available for walking. Accessibility and proximity will be delved into first, after which general appreciation towards wandering in forests will be discussed.

Accessibility and proximity

The positive factor of having a forest area in proximity to home was spontaneously expressed in four interviews. It seemed like closeness was important to make it convenient to walk regularly, often each day. This was shown by a few side comments about how participants stopped walking in one area and started walking in another after moving within Varberg. As we will come back to in the next subsection named *Both forest and sea*, it was also seen as positive to have several different nature types at your disposal; most commonly it was precisely forest and sea that were mentioned in this context. The proximity between the town centre and forest areas was also seen in a positive light. This closeness meant that it was possible both to wander in nature and stroll in the town centre in the same walking bout. One participant aptly put it like this: "… you have the forest on one side and on the other side you have the town, so you have this proximity all the time".

The forest is also accessible in the sense of providing for a walking environment that (relative to others) is protected against wind, rain and sun. In two interviews it was commented on how this made wandering in the forest a good alternative to walking along the ocean on windy days. One can say that a forest area provides a stable opportunity for walking, extended through different climates and also available through a longer part of the colder season compared to other, less protected areas. As one participant put it, the forest is always available for walking; you do not need to adhere to a fixed schedule, prepare sports clothes nor transport yourself somewhere else, which would have been the case if you were going to a gym class.

Figure 62. A path in the forest area 'Påskbergsskogen' in winter.
Photo: Author.

Appreciation

In five of 17 interviews, forest areas were spontaneously appreciated as walking environments. One interviewee preferred to walk in the forest, saying that it was the very best. Another way of expressing a similar opinion was for one participant to evaluate the section of the walk-along interview route we walked in the forest as the part she liked the most. In another interview, it was explained how it was nice to be out in the forest (we walked in the forest 'Påskbergsskogen' as seen in Figure 62), with walks made there three times per day. Walking the dogs also contributed to this high walking frequency. Yet another participant liked to wander in the same forest. He said that the 'Påskbergsskogen' forest is nice to wander in, with leafy deciduous trees such as beech. Forests thus are valued natural areas in Varberg, with the centrally located 'Påskbergsskogen' being the one traversed the most during the interviews. However, also other areas were mentioned such as the forest in and around the 'Håsten' district.

Both forest and sea

Having both forest and the ocean nearby provided several advantages in regards to diversity in the choice of walking routes. When the weather was very windy, it was possible to walk in a forest to be protected from the weather, it was stated in three interviews. If the weather was somewhat windy it could be enough to move the walking bout to the meadows, and on nice days with sun, Varberg offered nice walks along the ocean, according to one of these interviews. In general, four interviewees spontaneously commented on how positive it was to have both forest and sea nearby of which one person specifically pointed out how it was positive to be able to choose between these two types of natural environments to walk in/by.

Several participants made comments where they connected both forest and sea as destinations or walking environments. One participant said that she walked often in the 'Brunnsbergsskogen' forest, which she liked as it was accessible by wheelchair. She also said that she enjoyed nature while wandering in the forest in the 'Håsten' area. The strong point of the forest in the 'Håsten' area was that it provides signposted walking routes. Additionally, she enjoyed strolling along the seaside boardwalk. The main attraction of the seaside boardwalk was, of course, the ocean. Another interviewee expressed how the ocean's fluctuations and tinges gave a sense of freedom, and that she also liked to walk in the 'Hästhaga' area which has a view of the sea. She enjoyed shifting between walks along the sea and in the forest, where the area 'Breared' is in between these two nature types. She liked 'Påskbergsskogen', as there are many small paths to choose from there as well as deciduous beech trees which added to a good walking atmosphere. In another interview, it was said that the forest gave her positive energy, with a comment made which was very similar to the one made by another participant, on how the forest offers a walking route choice with protection from wind when it was too windy to walk by the sea.

Ocean and boardwalk

Walking habits

In general, the ocean was popular as a natural element to accompany wanderings. One participant mentioned that she walked to the beach without mentioning a particular place. However, most interviewees talked specifically about the boardwalk 'Strandpromenaden' (see Figure 63) in very favourable terms. The boardwalk was a popular place to walk, one interviewee said that he walked there every morning. Someone else said that she wandered there often, while another one commented that she liked very well to walk along the boardwalk and near the sea. In another interview, 'Strandpromenaden' was described as a classical walking route, albeit not somewhere to go when it is very windy.

Figure 63. The seaside boardwalk 'Strandpromenaden', near its origin at the 'Varbergs fästning' castle.
Photo: Author.

Affinity to the ocean in general and the boardwalk in specific

Interviewees made general positive comments about walking along the ocean. The boardwalk in specific was connected with many positive evaluations. In 59 per cent (10 of 17) of the

interviews, the participants spontaneously made positive comments about the ocean, the boardwalk or both of them. One general comment about walking along the sea from one participant was that it was nice, another one said that she enjoyed walking along the ocean. Many comments concentrated on the boardwalk. It was seen as a place to enjoy nature in one interview. In two interviews it was said that the scenery was beautiful while walking along the boardwalk, while another interviewee stated that the boardwalk was her favourite. Another way of putting it by yet another participant was to describe the boardwalk as an asset and finally, one interviewee said that it was "something absolutely extraordinary" together with the beach resort 'Apelviken' and the castle 'Varbergs fästning', that are the endpoints of the boardwalk towards the south and north, respectively.

Proximity and connection to the ocean – a quality of Varberg

One interviewee said that it was unique for a Swedish town to have the ocean so close by, and found it remarkable that we could walk around the whole inner town and then look out at the sea in only 20-30 minutes. He appreciated the sea and the light due to the open horizons. Another interviewee also liked the vista of the ocean that could be seen from a street crossing in central Varberg. Finally, a third participant appraised both the ocean and the boardwalk 'Strandpromenaden' for providing beautiful eye-catching scenery.

Synthesis of Green aspects

The interviewees appreciated walking in nature. In three interviews participants explicitly stated that the liked walking in nature, and in two other interviews interviewees explained how they liked the calmness of walking in green settings. To observe changes in nature and have variation whilst walking was important; participants wanted to have route choice, see different types of nature along the walking route as well as observing changes in private gardens along streets. Gradual seasonal changes, such as in flowers and trees, were appreciated to observe while taking regular, often daily, walks.

For greenery in a town setting, street trees and trees around the town square were important for some, supplemented by greenery in private gardens along streets. Urban parks were very appreciated. For example, in more than a third of the interviews spontaneous positive comments were made regarding the 'Engelska parken' (a park characterised by its meandering walking paths, many benches and colourful plantations in summer); the participants used words such as cosy, lovely and oasis to describe the park in question.

In four interviews positive comments were made regarding that forests were nearby, and about the proximity between forest and town centre, and in five interviews forests were evaluated positively as walking environments. In four interviews the participants said that they liked to have both forest and sea nearby; the forest offered protection for walking when windy and the sea was enjoyable on sunny days.

In more than half (10 of 17) of the interviews, positive comments were made about walking along the ocean and boardwalk. The proximity and connection to the ocean were explicitly mentioned by three participants; one of them found it remarkable to be able to walk around in the whole inner town and then to and along the sea in less than half an hour.

Nature was talked about spontaneously in almost all (16 of 17) of the interviews. On a prompted question on what made them walk more in their vicinity, in 13 of 17 interviews responses were made of green aspects: such as changes in nature, greenery, parks, forests or nature in general. It can be concluded that having green elements in or near the built environment was connected to walking willingness in more than 75 per cent of the interviews.

5.4 Urban accessibility

Urban accessibility is here seen from the perspective of how well-connected origins and destinations in a town are from the viewpoint of the user (i.e. the pedestrian). In the first subsection named *Formation of the category* (below), the subject will be defined, followed by a description of how three subcategories have emerged from the analysis of the interviews. These three subcategories are a) *Proximity, availability & coherence* (page 167), b) *Range of destinations* (p. 170) and c) *Information for orientation and universal access* (p. 175). Each of these subcategories will then be analysed one by one in the following text. Finally, this section ends with a synthesis (on page 180) which provides a quick summary of its content.

Formation of the category

Definition

Urban accessibility is here understood in a morphological sense. This means how the town fabric and its street network offer pedestrians ways to reach their destinations, as well as provides destinations to reach. The scale level is intermediate (meso) and is in between the macro level of the whole neighbourhood/town and the micro-level of a specific place (such as a streetscape). In distance, this scale could be defined approximatively as what you can reach by foot in a short walk of more or less five to ten minutes. Urban accessibility is seen from the viewpoint of the pedestrian; how pedestrians in an urban context perceive the proximity or availability on foot of different kinds of destinations they desire to reach.

To get a quick overview of the scale and relation between different destinations in the centre of Varberg, please see Figure 19 on page 84.

Proximity a prevalent response to introductory questions

Table 3. Distribution of responses to introductory questions belonging to the Urban accessibility category.
Source: Author.

Introductory questions	Responses within category Urban accessibility					**Grand total** for all categories
	Proximity of small town	***Quicker than alternatives***	***Reserved walking spaces***	***Lack of information***	**Total** (% of grand total)	
2. Which are the most common reasons that you walk here?	**5**	**2**			**7** (17 %)	**41**
3. What do you think is positive with your vicinity area in regards to walking?	**8**				**8** (27 %)	**30**
4. What do you think is negative with your vicinity area in regards to walking?			**1**	**1**	**2** (11 %)	**19**
6. What in the outdoor environment makes you walk more?	**4**				**4** (14 %)	**28**
Total	17	2	1	1	**21** (18 %)	**118**

At the beginning of the interviews, all participants were asked the same series of questions. The answers to these questions were sorted into categories; we will now study the current category of **Urban accessibility**, which has been further sorted into codes.

Proximity of small town was a predominant code, in which the participants expressed how convenient it was to have a lot of things available nearby in Varberg, especially in and near the town centre. In five out of 17 interviews participants made responses that fell within

this code on the question *Which are the most common reasons that you walk here?*. On the question *What do you think is positive in your vicinity area in regards to walking?* in almost half (8 of 17) of the interviews, participants answered within the same code, for example stressing the proximity between the urban area, the ocean and forest areas. On the question *What in the outdoor environment makes you walk more?* four of the participants made responses classified in the same code; for example, one participant said: "Short distances between everything I need and the points I move between."

Moving on to the next code, two of the five participants above also said (as multiple responses were allowed) that walking was ***Quicker than alternatives*** as another response to the question *Which are the most common reasons that you walk here?* One participant quote illustrates both the proximity of the town and the resulting quickness of walking in the same phrase: "Well, the town is so small, there is no benefit in taking the bicycle when you will walk for five minutes".

As a response to the question on *What do you think is positive with your vicinity area in regards to walking?*, the advantage of ***Reserved walking spaces*** was mentioned in one interview; that areas (e.g. paths and pavements) were destined specifically for pedestrians.

To the question *What do you think is negative with your vicinity area in regards to walking?* the only response on urban accessibility was classified in the code ***Lack of information****;* better information about walking paths in natural areas was wished for here.

To sum up, the category of accessibility is quite prevalent in the participants' introductory answers. In twelve of 17 interviews (70%) at least one response was made within the category of urban accessibility, and the code ***Proximity of small town*** was predominant.

Keyword analysis resulted in re-structuration to build subcategories

The keywords used by the interviewees to discuss urban accessibility in the free-flowing main part of the interviews made subcategories emerge that captured the topics of the participants' conversations. These subcategories are listed in Table 4 on the following page. The subcategories are also used as subsections in the text that follows, the only change being that the third subsection is extended in name to *Information for orientation and universal access*.

Table 4. Number of keywords per interview uttered within a context of urban accessibility.
Source: Author

Subcategory	Keyword	Total # of interviews with keyword in relevant context	# of keywords in relevant context, separated by interview *(interview number)*																	Total # of keywords in relevant context	Original keyword in Swedish
			(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*	*(8)*	*(9)*	*(10)*	*(11)*	*(12)*	*(13)*	*(14)*	*(15)*	*(16)*	*(17)*		
Proximity, availability and coherence	distance	3	1			4					1						2			8	avstånd*
	walk to	2			1	1														2	gå till
	integrated	2				2												1		3	integr*
	minute	3				1									2		1			4	minut*
	reach	3				2					1	1								4	nå
	near	12	3	3	1	3			2	2	11				1	2	7	1	3	39	nära
	closeness	6	5			4				1	2	3					2			17	närhet
	convenient	2			1													1		2	smidig
	by foot	4				2				1	1							1		5	till fots
	available	2								8		3								11	tillgänglig
Range of destinations	store/shop	5	1			19					1	4					3	5		33	affär*
	buy/shop	9	2			2		1			2	3		1	2		3		2	18	handla
	café	1				3														3	kafé/café
	range	2				3													2	5	utbud
Information for orientation	information	6		1	2						7			4			6		2	22	information
	map	3		1	6						6									13	kart*
	sign	10	14	6	2			1	1	5	1			7			2		2	41	skylt*
Total			26	11	13	46		2	3	17	33	14		12	5	2	26	9	11		

Firstly, your town should be configured in such a way that those destinations you desire to reach are present, and secondly, you need to get to them with as little effort as possible. These questions are addressed in the first subcategory named *Proximity, availability and coherence*. Secondly, you also need to have the destinations you desire available nearby; this topic is addressed in the second subcategory named *Range of destinations*, which includes urban destinations (e.g. shops), as well as natural attractions (e.g. the ocean). Thirdly, you may need information on how to find your way, which is dealt with in the subcategory *Information for orientation*. Here guiding aides in both the physical environment as well as digital and printed information available elsewhere which intends to aid orientation are included.

Table 4 on the preceding page showed that the most common keyword was 'near' which was found in 12 interviews. In second place was 'sign' (10 interviews) and in third place 'store/shop' (9 interviews). The proportions of usage of the keywords related to urban accessibility are shown as a pie chart diagram in Figure 64. In the figure, four classes of keyword intensity are shown, from two interviews in which no keyword at all was used (in blue) to four interviews where the total sum of keywords was between 26 and 50 (in red).

It can be observed that many participants talked about urban accessibility. In 15 out of 17 interviews (88 %) at least one of those keywords related to accessibility was uttered. Four of the interviews (24 %) had an intense keyword usage (26 occurrences of keywords or more) which means that they talked at length about the subject of urban accessibility.

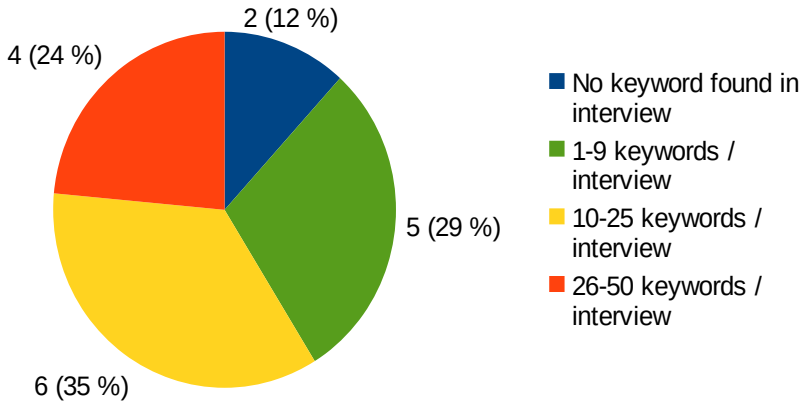

Figure 64. Frequency of keywords used in an accessibility context found per interview.
Source: Author.

Proximity, availability & coherence

Proximity is to a large extent about closeness to destinations; to have both urban and natural destinations that attract nearby. Availability is about having many types of destinations to choose from, a diversity of destinations rather than monoculture, and also that those kinds of destinations that one wishes to have really exist. Coherence depends on how the town offers an integrated structure of streets and places that can be understood as a whole, unscathed entity.

Positive to have everything close by

The range of destinations available within a certain walking time radius is important; a more frequent availability of desired destinations around town would increase the chances of finding one of them close by. The location of (both urban and natural) destinations in the town morphology of streets and places is therefore essential.

Four interviewees saw Varberg in a positive light with regards to having "everything close by" or at "short distance". Someone even said that it was easier to walk than to drive in the town core. It is very convenient to be able to shop groceries nearby for those who predominantly walk to make their errands, which the participants spontaneously said they did in almost half (8 of 17) of the interviews.

It seems that Varberg offers qualities in this aspect, as a large variety of stores, both grocery stores and others, are available in a short walking distance at the town centre. Varberg also benefits from having a fine mesh of smaller stores; as a consequence of each store being small in size, there is room for many stores in the centre.

One participant juxtaposed Varberg with the neighbouring town named Kungsbacka and made it clear that Varberg provides a superior configuration in this sense. He continued to detail how Kungsbacka has a centre that has substantially less variety in the number of stores within walking distance. Another disadvantage of the neighbouring town in question was that there is a motorway that cuts of the town centre, which affected walking not only from a barrier point of view but also in regards to perceived unity and legibility as well as to traffic noise, according to the same participant.

Varberg was seen as pleasant and accessible

Varberg has a town centre that is coherent in the sense that it is possible to walk through it without any major barriers such as motorways. The building size and preservation is also related to coherence, that will be addressed in the section *5.6 Place attachment* (p. 203). Here, coherence is instead seen from a morphological viewpoint, and we will now get to what the participants have to say about this topic.

When participated talked about how the town core is integrated, words such as continuity and pleasantness were used. It was seen positive that it is possible to reach everything by foot in Varberg as the car traffic is both slow and of limited size, according to three interviews. Several of the streets in Varberg are walking-speed streets or are for the exclusive use of pedestrians and cyclists, which increases the availability and accessibility by foot as stated in two of the three interviews mentioned above (see also Figure 65). As these areas are destined to walking you do not need to share space with other traffic categories, one participant said. It is possible to stroll around in the Varberg town core in a relaxed way, with a feeling of pleasantness, another interviewee stated.

Figure 65. People by foot crossing the town square of Varberg.
Several interviewees appreciated the limitations on car traffic, such as here in the carfree area by the town square. Photo: Author, 2019.

There is also a good mix of different functions or endpoints that are integrated into the town street fabric, one interviewee said, and as the town is small everything in the town centre is within easy reach by foot, it was stated in three interviews. These aspects appear to contribute to the continuity and coherence that the participants seem to sense in the town centre of Varberg. The rectilinear (check-board) street pattern of Varberg made it easier to find the way, one interviewee said. The town centre facilitates orientation through long through streets with long sight-lines and a rectilinear street pattern.

Car traffic and car roads bring negative barriers in the town core

There were negative comments made in five interviews on the barriers formed by streets and roads for cars at the border of the town core as well as in the central district of Varberg (including both the town core and adjacent neighbourhoods). The *Västra Vallgatan* street, which can be seen in Figure 66 can have quite an intense car traffic, especially in summer when a lot of tourists visit. Therefore, it can be difficult to cross that street calmly, and it was seen as a barrier for walking by the interviewees. One way to alleviate the barrier effect of car traffic that was suggested in one interview was to have partly carfree zones.

Figure 66. The 'Västra Vallgatan' car street form a barrier for pedestrians.
Photo: Author, 2019.

Range of destinations

To have a good range of destinations means that 'attractions' that pedestrians desire are present within easy reach in the urban and peri-urban context. To have a rich variation of shops available within a walking range is valuable for people that move predominately by foot. Nevertheless, it is important to remember that this is not the only type of destination that is desired. Besides shops and stores, natural destinations such as sea and forest are also sought after and need to be within an accessible walking distance to be integrated into daily walks. Therefore both commercial and natural destinations will be addressed as part of this subsection that discusses accessibility of destinations for completing desires or objectives through walking in Varberg.

Commercial destinations

The range of shops and services was mentioned positively in a spontaneous manner in over 40 per cent (7 of 17) of the interviews.

The proximity to a grocery store was appreciated in five of the interviews; it simplified daily life as grocery shopping could be made on a walking distance from home for those living in the central area of Varberg.

Other stores were also seen in a positive light. The great variety of small shops was commented upon as an advantage that Varberg has in comparison to other towns by one participant. These shops that are quite evenly distributed in different locations in the town centre stimulate towards walking as they provide both shopping windows to look at and services and goods that you may want to purchase. As the shops are plentiful and present on almost all of the streets of the centre they provide energy and life to the town core. Shops make it more interesting to walk in the town core, both for having something to walk to (an errand to make) and something to walk by (to see the shops while passing by). One interviewee put it like this when he talked about the Varberg town core: "You get this kind of feeling that there is something to explore even though you have walked here many times."

That shops in Varberg are relatively small in size and concentrated next to each other in the town centre can be seen in Figure 67 below.

Figure 67. The shops in Varberg town centre are small and close to each other.
Photo: Author, 2019.

To achieve a concentration of people and destinations – in form of shops or other attractions – there has to be a defined location; if things and people spread out too much there is no social and commercial nexus where 'things happen'. Varberg provides this nexus as the town centre is clearly defined; one participant explained how the surrounding streets of 'Västra Vallgatan' and 'Östra Vallgatan' define the limits of the centre.

The town centre was specified as the place to go to when in need of purchasing clothes, groceries and/or other things in many (7 of 17) of the interviews. The town square is the very centre of this nexus, as can bee seen in Figure 68 on the next page.

Figure 68. The nexus of Varberg: the town square in the centre of the town.
Photo: Göran Höglund (Kartläsarn@Flickr), 2011. Creative Commons BY 2.0.

Natural destinations

Besides shopping, nature and sea are central themes in the participants' stories. The town centre of Varberg is within short walking distance to attractive natural areas, both of green and blue character.

To have natural destinations close by is valuable for the participants; it is something that they express in their spontaneous comments on this subject. The closeness to forest and/or ocean was mentioned appreciatively in almost half (8 of 17) of the interviews. The participants used similarly worded expressions, e.g. "Well, Varberg has proximity both to sea, and then to forest" or "I reckon, here we have the closeness to forest and earth, the sea... […] Yes, we have so much to choose from". Additionally, parks were mentioned in the same context – another interviewee remarked how the proximity to the ocean, forests and parks was a positive factor in Varberg.

The ocean was a major attraction towards making walking trips. The boardwalk can be accessed in less than ten minutes from the town centre and several other neighbourhoods. It provides an excellent walking experience just at the rim of the ocean (as can be seen in figure 69). This closeness to the sea combined with the boardwalk was something that incentivised towards walking, as one participant expressed it.

Figure 69. The proximity to the seaside boardwalk was appreciated by the participants.
Photo: Author, 2019.

Forest areas, such as 'Påskbergsskogen' as seen in Figure 70 (on the next page), were explicitly mentioned as preferred places to walk in, or places that incited to more walking, in 10 of the 17 interviews. For example, one interviewee said that she preferred to walk in the forest instead of on asphalt and that she could achieve calmness through this green walking mode. Someone else mentioned how she gets positive energy from walking in the forest.

Figure 70. The 'Påskbergsskogen' forest was appreciated for walking by the interviewees.
Photo: Author, 2019.

Green areas do not need to be very big to be appreciated. Parks were mentioned by five participants in an appreciative tone in regards to walking. For example, the small central park 'Engelska parken' was described as an oasis, beautiful, cosy or nice to walk in. It is quite small in size but is placed right in the middle of the town, and is carefully manicured with both greenery, seating and sculptures. A park was described as a place to stay in and enjoy, for example by sitting down with the grandchildren eating ice cream, as well as an oasis to cross through during your walk. One participant used to integrate a walk through another, somewhat bigger, central park named 'Societetsparken' every day when she lived close by, but after she moved to another part of Varberg the park was too far away to continue this habit.

Information for orientation and universal access

To find green areas as well as shops we need information, at the very least the first time we need to go to a new place. Not only the physical morphology and the range of destinations of a town contributes to what extent it is accessible; information is also a key aspect. This brings us to another aspect of urban accessibility, which is information for orientation. Information needs to be available, clear and easy to understand. More information or cues about how to navigate to get from A to B improve the perceived accessibility. This information can take many forms; it can be information in situ with signage, maps, and waymarkers as well as digital or printed information to aid wayfinding, e.g. printed guide maps or navigation apps for mobile phones.

Physical signage for directions and information in time and space

In a natural setting in the Håsten district, it was appreciated by one participant to have good signposting along the 'Path of health' *(Hälsans stig)*. This path, which moves through different types of natural landscapes, was specially made to incentivise people to walk more (see Figure 71).

Figure 71. Indicator sign at 'the path of health' in 'Håsten', Varberg.
The sign orients which way to walk along 'The path of health' (Hälsans stig), a prepared walking path in the district of Håsten, Varberg which passes through different landscape types with the goal to provide a stimulating walk.
Photo: Author, 2019.

The 'Path of health' is part of a European project to promote better health through the provision of quality walking paths. Clear signage is offered with several alternative routes of different lengths, making it easy to walk there. Additionally, maps are signposted along the route, also making it easier to orientate, especially for someone who walks there for the first time. Along the path small indicators – see Figure 72 – are posted at crossroads to facilitate people to continue along the right path without having to put much mental effort into wayfinding. 'Pre-packaged' walking routes are provided, and the main walking route has a length of four kilometres. It has been carefully planned to provide variation through a different type of scenery – both within the forest and in open fields. The interviewee that used this path appreciated it a lot, as it helped her to maintain the habit of walking every day. She found it very convenient that she did not have to think or plan which way to walk. The walks were undemanding and relaxing, which contributed positively to her wellbeing.

Figure 72. Two types of pedestrian route signage in 'Håsten', Varberg.
Indicator for the continuation of the circular 'Path of health' (small sign in bright orange) and signage for the walking direction and distance to the town centre (oblong blue sign).
Photo: Author, 2019.

Whether in a natural or urban setting, it can be useful knowing the duration of a walk; it would be useful to have information posted at a walking route about how many minutes it takes to traverse it, according to two interviewees. Signage in natural areas can also be of informative purpose about nature in itself. One participant suggested to re-implement the signage in the "Påskbergsskogen" forest which explained about the name of the trees in Swedish and Latin, as well as information about them.

Physical and digital maps for wayfinding

Proper signage is especially important when you come to a new place and has no prior knowledge, said one participant. Maps can help to get a sense of orientation and they should preferably be available both digitally (stated by two participants), on paper (stated by one of these two participants) and posted physically en-route (stated by two participants). Physical information signposts with large orientation maps are useful, to get an overview of where to find for example shops, it was said in one interview.

Even when you are not new to a place, maps can be useful, for example helping to find new walking routes to provide variation and counter monotony, one participant said. Orientation maps are useful to have by the entrance to natural areas for walking, so you can get an overview of the paths. (In one interview it was mentioned the municipality had plans of this kind for the three entrances of the *Påskbergsskogen* forest, but that the plans were never completed). Maps can even be coupled to a sweepstake, as one participant explained existed in a municipality she lived in before, where you collect codes that are posted on an array of locations around a neighbourhood through the help of a map you can collect at the municipal administration. This way you are stimulated to walk to collect all the codes and being able to compete. Mobile apps such as Pokemon Go can similarly stimulate towards more walking, the same participant said.

Markings, signage and signals that help navigating traffic

It is not only wayfinding that matters; also signage and markings in the traffic environment are important. Properly marked zebra crossings were desired, as the types of unmarked

crossings common in Varberg made it unclear where one should cross and also adds an ambiguity in whether the pedestrian or the car driver has priority, one interviewee stated.

Better clarity in signposting was a wish by another participant, especially in relation to the separation between pedestrians and cyclists. She proposed to improve street markings (lines) to show more clearly which space is destined to pedestrians, combined with better signing and marking of the zebra crossings. This comment was made about the 'Västra Vallgatan' street, a through-fare for car traffic in the centre of the town. As can be seen in Figure 73 this street does not provide a clear way of crossing in the current situation; it is ambiguous whether the car driver or the pedestrian has priority and where one should cross.

Information to provide universal access

Another type of information is in regards to universal access – which routes and places conform to universal design so that anyone can traverse them regardless of condition? For people with different kinds of physical disabilities, this information is critical.

Figure 73. Unmarked pedestrian crossing at the 'Västra Vallgatan' street, Varberg town centre.
There is no clear signage to inform about how/where to cross the 'Västra Vallgatan' street on foot, neither who (the motorist or the pedestrian) has priority.
Photo: Author, 2019.

I asked one participant how he managed to know where kerb ramps were situated, to be able to enter and exit the pavement in a wheelchair. He said that he used his own memory as no physical signage, printed or digital information was available from the municipality on pavements adapted for wheelchair use. Another participant stressed the need to know whether a town, street or store was adapted for use with wheelchair or crutches and appreciated to have information on Internet for this purpose. The priority according to her was to have physical information at the place, complemented by information on the municipal web page together with printed folders. She also stressed the need to have information on-site regarding if/that the building is adapted for universal access and has a ramp available, as well as a way to get assistance, such as a bell to ring. According to the same participant, the information should be clear and preferably be available on-site.

Overall guiding information aimed towards tourists

Yet another type of information is in regards to tourist information, often about cultural heritage. This type of information can be lacking. Information in form of signage and maps are important for the marketing of a town towards tourists – one interviewee would have liked to have information boards with maps in the natural 'entrances' or 'gates' to the Varberg town core, as well at prominent places in the centre, such as on squares.

Summary of information needs

Put together, the reflections of the participants point towards the need for information in different forms and for divergent purposes. Forms of information that have been suggested in the interviews are physical (signage and posted maps), digital (maps in a mobile app or on a web site) as well as printed material (maps and brochures). Several participants spontaneously pointed out shortcomings as well as gave suggestions for how the municipality could improve the information. The most common was to suggest more information (maps and signage) in situ to address different kinds of information needs. Information on which pavements are adapted for wheelchair use was a critical need. Another pertinent need was for wayfinding purposes. Other uses were information for planning the duration of a walking trip and for clarity while negotiating traffic, such as in connection to zebra crossings.

Synthesis of Urban accessibility

Participants commented on a) proximity, availability and coherence, b) the range of destinations and c) information for orientation, all comments being spontaneous.

Four interviewees liked that Varberg had everything close by, with a large variety of stores; both grocery stores and other store types. The town centre was specified as the place to go to for purchasing clothes, groceries and/or other items in many (7 of 17) of the interviews. Also, the range of shops and services was mentioned positively in 7 (over 40 per cent) of 17 interviews. In five of those interviews, the participants specifically mentioned that it was positive that grocery shopping could be made on a walking distance from their home in the central parts of Varberg. Almost half of the participants walked to run errands. In five interviews participants commented negatively on the barrier that was formed through the 'Västra Vallgatan' through-fare street, as well as the ring roads that encircle central Varberg.

To have natural destinations on a walkable distance was something that was liked; in almost half (8 of 17) of the interviews, the forest and/or the ocean was mentioned positively in this context. Also, parks were valued as destinations in five of the interviews.

Regarding information for orientation, the 'Path for health' was very appreciated by one interviewee, helping her to sustain her daily walking habit. She showed the concept with clear signage and maps during the walk. In general, proper and clear signage and maps were deemed important in five interviews. Regarding maps, the participants wished for digital, paper as well as physical (on-site) maps. Markings and street signage was found somewhat lacking in the town centre. The scarcity of clearly marked zebra crossings made it hard to cross the street in a relaxed way, as it was ambiguous if it was the pedestrian or the car driver that had priority. Information and signage in regards to universal access (for people using wheelchairs among others) were severely lacking. No information was available on which streets that had been adapted for wheelchair use, neither on-site nor on the Internet. People with disabilities had to rely on their memory to know which streets they could traverse.

In summary, it can be said that the proximity to both commercial and natural destinations is an appreciated quality of Varberg, but that information such as maps and signage could be improved, with disability access information being severely lacking.

5.5 Physical feasibility

In the context of this section, **Physical feasibility** means how well the physical environment is adapted for everyone to move about unhindered, regardless of physical (dis)ability. Physical universal access is a central theme of this section. However, the topic of information for universal access – on-site, on the Internet and in printed form – has already been detailed in the category/section of *Urban accessibility* under the subheading *Information for orientation and universal access* (page 175).

This section on **Physical feasibility** starts with *Formation of the category* (below) in which the category is defined. The four subcategories that have emerged are also presented, which relate to the physical standard of streets and shops in regards to physical accessibility. After that follows the main text (beginning on page 186) which details what the participants have said about the category. Finally, this section ends with a synthesis of the findings (on page 202).

Formation of the category

Definition

This category – Physical feasibility – is about the physical comfort or the physical accessibility of moving about. It is associated with how materials, dimensioning, configuration and maintenance of streets – the pavements in particular – affect the bodily experience when traversing the town, for everyone in general and for disabled in particular. Pedestrians have a close physical affinity with the surface, either by foot or by wheelchair, a stark contrast to the more indirect and isolated relation with the physical environment that is experienced as a car driver. This category is connected to the concept of 'Universal design', which means to design environments that are accessible to everyone, able-bodied as well as persons with any kind of disability.

Introductory answers related to physical feasibility

All participants were asked the same questions at the beginning of their interviews. Some of the responses to these introductory questions could be placed in the current category of **Physical feasibility**. Within this category, the responses of the participants could be further categorised into four codes, which can be seen in Table 5 below.

Table 5. Distribution of responses to introductory questions belonging to the Physical feasibility category.
Source: Author.

Introductory questions	**Answers within category Physical feasibility**					**Grand total** for all categories
	Unevenness and sharp edges	***Accessible environ-ments***	***Wheelchair adaptation ground / stores***	***Lack of adaptation wheelchair use***	**Total** (% of grand total)	
2. Which are the most common reasons that you walk here?					**0** (0 %)	**41**
3. What do you think is positive with your vicinity area in regards to walking?			**2**		**2** (7 %)	**30**
4. What do you think is negative with your vicinity area in regards to walking?	**3**			**4**	**7** (37 %)	**19**
6. What in the outdoor environment makes you walk more?		**1**			**1** (4 %)	**28**
Total	3	1	2	4	**10** (8 %)	**118**

All questions could be answered either not at all, with one or with multiple responses. On *What do you think is positive with your vicinity area in regards to walking?* the two responses within the **Physical feasibility** category were coded as ***Wheelchair adaptation ground / stores***. One participant answered that he appreciated asphalt as the surface material, as it was smoother and softer to traverse by wheelchair compared to other materials. Another interviewee liked that certain shops had improved access possibilities for wheelchair users.

As could be seen in Table 5 on the previous page, most answers on physical feasibility were made to the question *What do you think is negative with your vicinity area in regards to walking?* – with three of the seven responses pertaining to the ***Unevenness and sharp edges*** code. One participant was critical of the height difference between pavement and street, that dropped kerbs were not available everywhere and also of the unevenness in the street pavement. Another participant had a negative opinion in regards to sett stones, that made it painful to go by wheelchair because of the vibration caused. The third of them said that the unevenness is a negative aspect of moving about in Varberg.

The other four responses to the same question (on what is negative with the surroundings in regards to walking) were sorted into the code ***Lack of adaptation wheelchair use***. One interviewee said that the sett stones used in general in Varberg were not good for people using wheelchairs or rollators (walking frames with small wheels). Two other participants had similar opinions, finding the street material, as well as the absence of dropped kerbs negative. The fourth interviewee remarked similarly, adding that for a person with a condition which includes pain it would be painful indeed to use a wheelchair on the sett stones, which are common in Varberg, due to the vibration caused.

Finally, there was one response to the question *What in the outdoor environment makes you walk more?* which gives an excellent summary of what physical feasibility, or universal design, is all about. The interviewee responded that it was about being able to easily go through to get where she wanted. The code ***Accessible environments*** was chosen here.

For the free-flowing interview parts, another manner of subcategorisation (not using the codes) was found suitable, which is detailed in Table 6 on the next page. These subcategories are re-used as names of the subsections that structure the text that follows.

Table 6. Number of keywords per interview uttered within a context of physical feasibility.
Source: Author.

Subcategory	Keyword	Total # of interviews with keyword in relevant context	# of keywords in relevant context, separated by interview (interview number)																	Total # of keywords in relevant context	Original keyword in Swedish
			(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)		
General view	accessible	6					7	1		3				1				1	1	14	tillgänglig*
	wheelchair	5	3	2			7	10						34						56	rullstol*
	electric wheelchair	2														2			1	3	permobil*
	rollator walker	5	4				3	4						1					1	13	rullator*
Surface materials	asphalt	7			4		4				1	3		1		4			1	18	asfalt*
	tile	3					1							2		2				5	platt*
	stone	7			3		11	7		6		3		4		4				38	*sten*
Kerb	kerb/edge	7	1				21	12		8				5	2	1				50	kant
	chamfered	2					6							3						9	avfas*
Pavement	pavement	6					7	4		7				8		2		1		29	trottoar*
Accessing shops	steps	3	1											16		3				20	trapp*
	ramp	2						2						10						12	ramp*
Total			9	2	7		67	40		24	1	6		85	2	18		2	4		

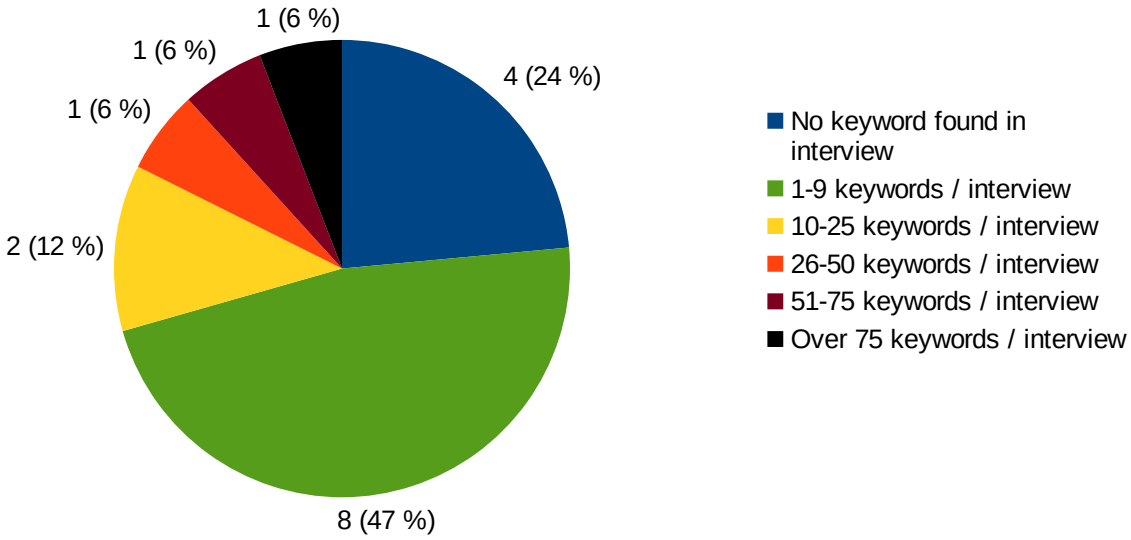

Figure 74. Frequency of keywords used in a context of physical feasibility found per interview.
Source: Author.

The frequency of keywords used related to the current category, i.e. **Physical feasibility**, are shown as a pie chart diagram in Figure 74. It can be observed that at least one keyword related to physical feasibility was used in 13 (76 %) of the interviews. Three interviews (17%) had an intense or very intense keyword usage (26 keywords used or more). In common with the topics of all the other categories, the participants were not asked specifically about the topic at hand; it was addressed spontaneously by the participants.

General view

Overall, it was argued that physical accessibility was advantageous for many groups; one participant said that people in wheelchairs, as well as those walking with babies in trolleys, were affected positively by high accessibility. She continued to say that accessibility with wheelchair and crutches is central, that to not be able to access the place you want to go to was a limitation in freedom, and also added that to be dependent on others was not pleasant.

Surface materials

Asphalt

Asphalt is not so commonly used as material for pavements in the Varberg town centre but is common on pavements outside of the town core. Asphalt was explicitly mentioned as a preferred paving material by three of the interviewees that commonly used a wheelchair for locomotion in Varberg, as it provides the smoothest surface in comparison to the other types of paving materials found in Varberg.

One interviewee of these three said that he appreciated asphalt as the surface material, as it is smoother while moving in wheelchair. He said that asphalt gave fewer vibrations which led to feeling less bodily pain from his type of disability. Further, he explained that asphalt makes a great difference compared to the experience of driving on bigger setts, which do not provide the same smooth surface. The second of these three participants also preferred asphalt for going by wheelchair as it in general provided a more smooth journey. On a question to the latter participant on whether he preferred asphalt or the granite oblong flagstones (which are detailed later in this text), he said that asphalt was somewhat better. Another question made to him was what he liked most in the outdoor environment during the walk. He answered that he liked the smoothness of the asphalt on a section of the 'Västra Vallgatan' street we traversed. The third participant similarly said that asphalt is a good material to move on by wheelchair.

A different interviewee remarked that everything should be easily accessible; if paths in the forest were laid with asphalt it would be easier for people to go there with rollators (walking frames with small wheels) or wheelchairs. Finally, it was mentioned by yet another participant that he preferred to go by wheelchair on the cycle lane that had asphalt as the surface material, rather than on the pavement, which had small setts.

An example of where asphalt is used as pavement material near the town centre is shown in Figure 75 below, which shows walk and bicycle paths adjacent to the castle. Asphalt is also used on the seaside boardwalk.

Figure 75. Asphalt used as paving material on the path around the castle.
Photo: Author, 2019.

Granite oblong flagstones

The best type of stone to walk on according to the participants was the granite oblong flagstones. Although not as smooth as asphalt, these provided a quite smooth surface; it was possible to move on in a wheelchair quite comfortably, as the granite oblong flagstones offered less friction than other stone types used in Varberg. These flagstones have been laid three by side, as seen in Figure 76 on the next page.

Figure 76. Granite oblong flagstones set three in a row in the Varberg town centre.
Photo: Author, 2019.

One participant said that granite oblong flagstones were not so uneven nor stumble-prone and formed a good example of a compromise between preserving the building environment and making it accessible. Another participant wished to have these granite oblong flagstones laid at more places in Varberg as he preferred this type of stones, but said that they are not commonly found. He continued to say that they are laid evenly in a nice way, and are the smoothest types of stones. Yet another participant remarked that it was preferable to move about on the flagstones compared to on the small setts.

At the 'Norrgatan' street a type of medium-size granite stones, seen in Figure 77 on the next page, have been laid smooth next to each other in a street refurbishment project that was finished in 2015. One participant appreciated the remodelling of the 'Norrgatan' street and said that it was easier to walk there now with the new ground material, compared to the situation before (that had uneven stones).

Figure 77. Medium-size granite stones at the 'Norrgatan' street.
Photo: Author, 2019.

Small setts

Small setts is a common paving material in the town core, as can be seen in Figure 78 below.

Figure 78. Small setts (where the person walks) as paving material in the centre of Varberg.
Photo: Author, 2019.

The participants detailed how small setts were experienced negatively as this type of stone provides an uneven surface. One participant said that stone pavements such as small setts did result in a jumpy ride for people using wheelchairs or rollators (walking frames with small wheels). Albeit she thought that pavements with setts provided for a snug atmosphere she questioned the functionality of this material for use by people with wheelchairs and walking frames.

To use a wheelchair on this type of pavement leads to vibration which brings unease or even pain in some cases; a negative contrast compared to moving on asphalt, another participant said. However, he added, the bigger setts are significantly worse compared to these small setts. The unevenness of the small setts also results in a risk to stumble, a risk that is amplified for those with walking difficulties. He continued remarking that he avoided taking the route along the 'Kungsgatan' street, which can be seen in Figure 79, as it was very uncomfortable. Instead, he chose to go by wheelchair on the 'Östra Långgatan' and 'Torggatan' streets.

On the other hand, another participant appreciated walking on setts, as it added to the charm of the environment. But he also said that setts could be slippery when wet.

Figure 79. The narrow pavement on a section of the 'Kungsgatan' street, paved with small setts.
Photo: Author, 2019.

Bigger setts

The worst type of stone according to those participants that had some kind of locomotor disability was the bigger setts, as can be seen in the middle of the pedestrian street of Figure 80. As the ground shifts, these slabs become very uneven, with a high risk of stumbling, especially for those with walking difficulties, as well as being very uncomfortable or even painful when moving about in a wheelchair. It was important to have a smooth surface to traverse in a wheelchair, and the bigger setts did not provide smoothness, one interviewee said. He later continued saying that these bigger setts subside irregularly, which made the wheelchair ride very jumpy and bumpy. Another participant with a locomotor disability explained that this type of stones is very stumble-prone.

Figure 80. Bigger setts in a pedestrian-only section of the 'Kungsgatan' street near the town square.
Photo: Author, 2019.

Other materials

One of the walk-along interviews was conducted while walking in mostly a natural context; here the interviewed preferred gravel as the surface material for walking. Another interviewee preferred grass as material for walking when possible (in natural environments) and small

setts as a second choice in urban environments. Additionally, a third interviewee preferred to walk in the forest on paths (which provided a softer material compared to asphalt). Finally, a fourth interviewee said that the forest path we walked on was prepared to be reasonably easy to traverse in a wheelchair, with small height differences.

Kerb

The kerb separates pedestrians from vehicles, most often with a height difference. This street element was very problematic according to the participants. High kerbs (an example can be seen in Figure 81) result in that people using wheelchairs could neither get up from the street to the pavement nor get down from the pavement to the street. This means that they either could not get to the place they wanted to go at all, or they had to take substantial detours to get there via pavements that were configured correctly with a dropped kerb. Additionally, if walking with a locomotor disability or if aiding someone to move about in a wheelchair, a raised kerb also translated into an increased risk of falling.

Figure 81. High kerb along a street in Varberg.
Photo: Author, 2019.

Dropped kerbs are an important and needed element for universal access. A dropped kerb means that the kerb has a chamfered edge, which angle is made only moderately inclined, enabling people with disabilities and/or using wheelchairs, baby proms or rollators to easier navigate. A dropped kerb adjacent to a zebra crossing in the centre of Varberg can be seen in Figure 82. It is important with a moderate angle, as well as a low height difference, for a kerb to function when using a wheelchair, according to one interviewee. The same person explained that putting small setts along the edge was not good if you are a handicapped person with bodily pain that is aggravated by the vibration caused. He continued saying that high kerbs either made it impossible or very uncomfortable to move forward and was one of the worst things from a physical accessibility point of view. At some places, the chamfering was better prepared for cars than for pedestrians, and at other places, there were no dropped kerbs at all. This would mean a long detour with the wheelchair to eventually find a dropped kerb that could be used or even to have to turn around.

Figure 82. Zebra crossing with dropped kerb at the 'Västra Vallgatan' street in Varberg town centre.
Photo: Author, 2019.

Having a dropped kerb is one of the necessary elements of making a public building access-friendly to everyone. Three good examples pointed out by the same participant was the

sports centre, the centre mall and the local bookshop. However, he said that the standard was very inconsistent between areas; sometimes with and sometimes without dropped kerbs.

Another interviewee that assisted users in wheelchairs in her job said that when you drive someone in a wheelchair, you risk that the wheelchair could tip over when you navigate high kerbs. The same interviewee continued saying that this results in a feeling of insecurity, especially as an electric wheelchair can wobble easily. The same interviewee also wished that everywhere, in each street corner, there would be dropped kerbs. She added that more thought should be directed towards dropping high kerbs; it is often something that is missed. Nevertheless, she pointed out a few places along the route we walked were the municipality had implemented dropped kerbs. In either case, the difference in level between street and pavement, i.e. the lack of dropped kerbs, was the main negative factor according to her.

High kerbs was also described as a negative factor by another participant, who said that high kerbs were what most often forced her to turn back when moving around with the wheelchair. However, the same participant also said that the situation had got better in the centre of the town, with more dropped kerbs implemented. Yet another interviewee explained that the height differences varied a lot, sometimes there was a high difference, sometimes lower so you can drive directly down the kerb with the wheelchair. A third participant said that there was a very substantial height difference between the street and the pavement.

On the other hand, another participant stated that a kerb difference between cyclists and pedestrians could make it easier to better separate the two modes of transport, and therefore to walk more calmly. Finally, yet another interviewee proposed to eliminate the kerb entirely, to provide a flat surface for all kinds of movement on a street, provided that the street did not have intense car traffic. Kerbs were seen as problematic by this participant due to the risk for falling; the interviewee preferred to having streets without kerbs (i.e. without height differences between pavement and street) to not risk stumble.

Pavement

The pavement design and maintenance provided problems as well, in regards to width, slope, unevenness, irregularities, objects on the pavement as well as insufficiencies in signage and markings.

Width

In some places, the pavement did not have a sufficient width, which made it impossible for two persons moving about in wheelchairs to cross paths, according to one participant. The same participant preferred to have one pavement that was sufficiently wide on one side and one narrow pavement on the other, rather than having two pavements where neither of them had a sufficient width. Someone else also thought that it would be sufficient with pavement on one side, provided it was wide, adding that the pavements in Varberg have a generous width. However, another informant was of the opposite opinion: she wanted to have wide pavements on both sides of the street. Yet another participant appreciated those cases when the pavement was sufficiently wide for making it easy to drive a wheelchair. In a different interview, it was said that it is tiring to walk on a narrow path, especially if there are a lot of other pedestrians walking on it. Another person said that there could be an exceptional many concentration of people in Varberg in summer on and around the pavement in all kind of transport modes: walking, biking or in cars. He said regarding space allocation that walking was de-prioritised compared to cycling, adding that cyclists had three times as much space compared to pedestrians.

Slope

Another problem with pavements was high gradients or slopes. Moderately high gradients made it difficult to move about with wheelchairs, and if the gradient was high it was impossible to use that footpath with a wheelchair. As one participant said, pavements are not planned for wheelchairs; when the pavement has a slope it becomes difficult to go by wheelchair. She pointed out how the pavement had a high gradient in one section of the path we walked. Another participant said that in certain places it was impossible to use the path with a wheelchair, as the gradient was too high for making a turn when coming down-

hill. An example of a path of this kind can be seen in Figure 83 below. The same participant also pointed out an instance where the gradient for cars getting in and out was lower than the one for pedestrians. Yet another interviewee commented on the high slopes in the 'Engelska parken' park, making it taxing to traverse for wheelchair use.

Figure 83. Path with too high inclination to be used for wheelchair.
Photo: Author, 2019.

Unevenness and irregularities

Unevenness and irregularities were substantial problems according to the participants. Three participants, that either had an own disability or had experience of walking with disabled persons, commented on unevenness in the pavement, such as bulges, potholes and patchworks as well as manholes closings protruding upwards or downwards. These irregularities made it uncomfortable and heightened the risk to fall while moving about on foot. Also for moving about in a wheelchair this state of the pavement made it

uncomfortable, or even painful. An example of unevenness and irregularities on a street in Varberg can be found in Figure 84.

Figure 84. Unevenness and irregularities in a street crossing in Varberg.
Photo: Author, 2019.

One of the three participants that talked about unevenness and irregularities described how a pavement, that he said was the worst in Varberg, was full of bulges and unevenness. In another place, the same person remarked that there were large potholes on the footpath. The second participant said during our walk bout in town that the pavement surface was very uneven and that this was a difficult thing. The third participant said that he had difficulties to walk and that the unevenness was one reason why he usually moves about in a wheelchair. He said that there were lots of potholes, unevenness and irregular surface materials: suddenly asphalt can switch to gravel and then to stones, and holes can turn up unexpectedly. This situation was exacerbated by the many road works that are ongoing in Varberg, he explained. As the first response to the question of what is negative with moving about in the vicinity, he answered unevenness. Regarding surface materials, the same participant said that even though asphalt was the preferred street surface material, it could also be a problem sometimes, with potholes or unevenness.

There were also other elements mentioned as obstacles. It was commented by one participant that manhole closings could either stick out or cave in from the pavement. An accentuated height difference due to protruding manhole closings would make it difficult to traverse with a wheelchair. Small glass or stones in the gravel put on the snow in winter to protect against falls could also cause problems for wheelchair drivers, as they could result in a puncture, the same participant said. Another interviewee said that the combination of snow and ice together with unevenness in the pavement, exacerbated by the use of stones as paving material, led to risk to slide in winter, as can be seen in Figure 85. A different participant commented that that certain places where she walked could be very icy in winter, which made it difficult to get out to walk, due to ice and/or water.

Figure 85. Unevenness gets even worse in wintertime with snow and ice.
Photo from a street in Varberg town centre.
Photo: Author, 2019.

Objects on the pavement

Not only the configuration of the pavement in itself but also objects on top of it limited the freedom of movement. Flowerpots and other things, usually put out by shop owners to advertise their stores, made it either difficult or impossible to pass by in a wheelchair.

Although I did not have the opportunity to interview a sight-impaired person, one can easily understand how these flowerpots would be substantial hindrances in that condition as well. One interviewee commented that one street section we passed by was occupied by flowerpots and other stuff. Another participant observed, while passing by the entrance to a restaurant, how flower pots where blocking the access to the handrails, thus contributing – together with the large steps – to making it impossible to access the restaurant in a wheelchair.

Separation, markings and signage

One of the participants remarked that the separation between the area destined for cyclists and the area allocated for pedestrians was unclear, which made one feel unsure of where one should be. Also, there is an unclearness in not having real pedestrian crossings; these are necessary, according to the same interviewee. Another interviewee was not sure about where she should drive her wheelchair: on the pedestrian pavement or in the cycle lane.

The question of unclear signage has also been treated more in detail in the section *5.4 Urban accessibility* (p. 162), especially in regards to the lack of zebra crossings. It seems that marked zebra crossings provide a feeling of safety to pedestrians; that you know what the rules are and that you as a pedestrian has priority versus the cars.

Accessing shops

To access public indoor environments you need to be able to both traverse the streets and also get inside. If there is a height difference it is important to have facilities that aid you if you have a locomotor disability, such as ramps, handrails and automatic door openers.

Traverse height difference

Doorsteps can be a hindrance or limit access entirely. Stairs provide an even larger limitation, most often making it impossible to enter with a wheelchair. In both cases, there is a risk of falling. A ramp can, on the other hand, transform the situation entirely. Provided it is configured correctly it can make it possible to enter with a wheelchair. Easily grippable handrails are also important to facilitate entrance and limit the risk of falling.

One interviewee covered the area of access to stores and restaurants thoroughly. She showed a positive example with no barrier between the street and shops as both had the same height. This made it easy to get in with a wheelchair. She commented that it was often easier to get into the outdoor seating area of a restaurant due to it being on par with the pavement, while it could be difficult or impossible to get into the actual indoor restaurant. Stores and restaurants (as well as other buildings uses open to the public) that only provide stairs entirely blocks the possibility of entrance for many disabled persons. And as she put it, you do not return to a restaurant if they need to drag you up along stairs or something like that; it is not pleasant to be dependent on help to get in. The same interviewee continued along our walk to show different examples of ramps. When a height difference needs to be traversed between street and store ramps of a correct slope are essential to get in. She said that the library 'Komedianten' was a building with a good ramp, as can be seen in Figure 86.

Figure 86. Example of a well-configured ramp with handrails at the library 'Komedianten', Varberg.
Photo: Author, 2019.

However, the ramp that could be found in a clothes store, shown in Figure 87, was way too steep to be of any practical use, according to the same participant. Easily grippable handrails are very important as they are essential to traverse a heigh difference effectively with a wheelchair, the same participant continued.

Ramps with a low inclination and grippable handrails are thus essential for wheelchair users.

Figure 87. Ad-hoc ramp in a clothes store, way to steep to be of practical use.
Photo: Author, 2019.

Be able to enter through doors

Automatic doors and door openers make it easier to enter a building, as commented by two participants. According to the first participant, door-opening buttons are often placed in the wrong position, but good examples exist too, such as the town mall 'Gallerian' and the book store, where the doors are opened automatically as you enter. The second participant also was positive to the physical accessibility of the book store, but also mentioned another shop where the owner had refused to install an automatic door opener.

Door openers and automatic doors make it easier to get into a building – they are excellent examples of universal design, which benefits all.

Synthesis of Physical feasibility

When participants were asked what is negative with their area in regards to walking, three responses were made in the subcategory 'Unevenness and sharp edges' and four in 'Lack of adaptation wheelchair use'. Comparisons of pavement materials were made unprompted in three interviews by participants with physical disabilities; asphalt was the preferred material. Granite oblong flagstones, albeit not as smooth as asphalt, came second. Small setts were experienced negatively, their unevenness led to vibration and discomfort when moving about in a wheelchair, and became slippery when wet. The worst type of pavement material was bigger setts, which were very uneven, leading to stumbling risks as well as uncomfortable or even painful rides by wheelchair. High kerbs were problematic and could limit access possibilities to whole streets or blocks as well as result in danger of falling. Dropped kerbs were therefore wished for, and it was critical that they were designed with a moderate angle and that there was a low height difference between pavement and street. In some places, the slope of the pavement itself made it difficult or impossible to traverse in a wheelchair. Three participants, either with own disabilities or helping someone else with locomotive limitations, commented on the problem with unevenness in the pavement, such as bulges, potholes, patchworks and manhole closings, which made traversal uncomfortable and increased fall risk. Objects on the pavements such as flower pots put out by store owners could limit the possibility to pass through. To get into a store with a wheelchair, or with otherwise limited mobility, height differences often need to be surmounted, and a ramp with a correct slope is therefore essential. Automatic doors and door openers also facilitate.

To sum up, the configuration of the physical environment often define the challenges, possibilities and limits that people with disabilities have to deal with. Ideally, pavements should be flat, made of smooth material (e.g. asphalt), all kerbs should be dropped and have a low height difference to the street and ramps correctly sloped should be available wherever needed. Regretfully, the reality, however, provides many instances of big uneven stones to stumble upon, high kerbs impossible to traverse with wheelchair and stores with no ramp whatsoever; all these instances combined make for severe limitations in the freedom of movement of people with different kinds of physical impairments.

5.6 Place attachment

Place attachment is about how people identify with their surroundings in the built environment. The interviews made it apparent that it was important for several participants to have preserved environments, or more specifically preserved buildings, in the Varberg town centre, so that they could identify with their surroundings and feel at home. This section starts (below on this page) with establishing the meaning of the topic, followed by an explanation of those of the participants' responses that fell within this category and how these responses were distributed in four subcategories. The main text (starting on page 208) then provides a qualitative view of the participants' conversations regarding place attachment. The section ends with a synthesis of the findings (on page 215).

Formation of the category

Definition

The definition in this paragraph is based on the works by Scannell and Gifford (2010). 'Sense of place' and 'place attachment' and are often used as synonyms and deals with the identification and familiarity that people feel towards a place. Place attachment can thus be seen as a process that occurs between person and place, where the person establishes both her individual meaning as well as interprets the collective understanding of the surrounding physical context. Psychologically, the process of attachment is operating in several ways: affective, cognitive as well as behavioural components. For place, characteristics such as spatial level (from home via neighbourhood to town/city), specificity (to what degree the place is distinct and/or unique in character), as well as interrelations with other aspects (social and physical), are applicable.

Introductory responses related to Place attachment

Regarding the answers to the introductory questions stated to everyone interviewed, a few of the responses could be sorted into the category of Place attachment. Within this category, the participants' discourses could be categorized into four codes, each represented by a colour in the overview presented below in Table 7: ***Preservation*** (blue), ***Identification*** (green), ***New modern high buildings*** (yellow) and ***See old houses*** (red).

Table 7. Distribution of responses to introductory questions belonging to the Place attachment category.
Source: Author.

Introductory questions	**Answers within category Place attachment**					**Grand total** for all categories
	Preservation	***Identification***	***New, modern high buildings***	***See old houses***	**Total** (% of grand total)	
2. Which are the most common reasons that you walk here?					**0** (0 %)	**41**
3. What do you think is positive with your vicinity area in regards to walking?	3	1			**4** (13 %)	**30**
4. What do you think is negative with your vicinity area in regards to walking?			1		**1** (5 %)	**19**
6. What in the outdoor environment makes you walk more?				1	**1** (4 %)	**28**
Total	3	1	1	1	**6** (5 %)	**118**

All questions could be answered with multiple responses. On the question *What do you think is positive with your vicinity area in regards to walking?* three answers belonged to the ***Preservation*** code. One participant said that she found the vicinity homely and nice and explained that they have preserved the old buildings around us we experienced during the interview trajectory. Another said that he liked that the area is quite intact and that it is positive that many of the houses around are protected due to cultural heritage and are not allowed to be modified to any substantial degree. The third participant said that she liked nice buildings with façade detailing. These details are present in particular on older buildings in the Varberg town core.

Additionally, one answer to this question was labelled with the code ***Identification***. The participant said that he finds it positive that he can identify with and recognise the surroundings (the streets and their houses).

The next question was similarly worded, but asked for the negative instead of the positive: *What do you think is negative with your vicinity area in regards to walking?*. Here only one answer fell into the **Place attachment** category, receiving the code ***New modern high buildings***. The participant that made the answer said that she did not like the new big, square box-like buildings that they strike up. She was not pleased by too modern buildings that mix up with the old existing townscape in the on-going densification process and would have preferred that new housing instead was built in other neighbourhoods than the town centre.

Finally, on the question *What makes you walk more?* one participant's response was coded as ***See old houses***. He said that he likes to look at all these old buildings that have been preserved. Especially he enjoyed all the beautiful façades which the town centre of Varberg offers.

Keywords were analysed and grouped

As a result of an analysis of the keywords, a new categorisation suitable for ordering the discourses used by the participants when they talked about place attachment took form. The keywords and their corresponding subcategories are listed in Table 8 on the next page.

Table 8. Number of keywords per interview uttered within a context of place attachment.
Source: Author.

Subcategory	Keyword	Total # of interviews with keyword in relevant context	# of keywords in relevant context, separated by interview *(interview number)*																	Total # of keywords in relevant context	Original keyword in Swedish
			(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*	*(8)*	*(9)*	*(10)*	*(11)*	*(12)*	*(13)*	*(14)*	*(15)*	*(16)*	*(17)*		
Common keywords (both continuity and coherence)	**house***	**9**	3			46		1		9		12	24		76		27	23		**221**	hus*
	build*	**8**	5			19		3		7		3	18		35		16	8		**114**	bygg*
	old*	**9**	1			18		4		10		6	3		12		3	10		**67**	gam*
	modern*	**3**				8		2							4					**14**	modern*
Continuity with history	**memor***	**3**								1			1		1					**3**	minn*
	histor*	**4**				2				1					9		3			**15**	histor*
Coherence in/of the built environment	**high***	**5**				2							8		8		4	8		**30**	hög*
	low*	**4**				3				1					2		1			**7**	låg*
	mix*	**4**				3				1					2			5		**11**	blanda*
	contin*	**2**				2									1					**3**	kontin*
Total			9			103		10		30		21	54		150		54	54			

The most frequently used keywords were in the first subcategory (in blue in Table 8 on the previous page). In the following text, however, only the second and third subcategories were used to form subsections, and the content of the first subcategory has thus been integrated into the remaining two. Both of the remaining subcategories, which became subsections, centred on the historical town centre of Varberg. The first subsection is *Continuity with history* (in yellow in table), on the connection between how the town centre looks now and how it looked before. In this subsection, the connection between history and identity is central. The second is *Coherence in/of the built environment* (in green in table). Here the participants discussed what contributes to make the Varberg town centre be experienced as being a whole, and also pondered on the future in regards to their town's coherence.

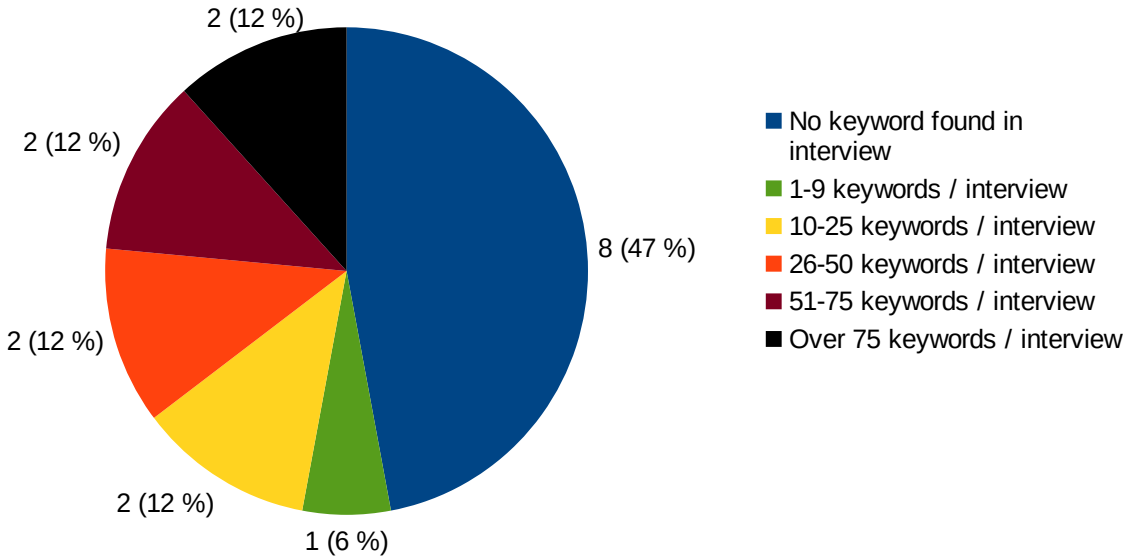

Figure 88. Frequency of keywords used in a place attachment context found per interview.
Source: Author.

As can be seen in Figure 88, the extent of talk about place attachment varied extremely between interviews. In almost half (8 of 17) of the interviews the subject was not discussed at all, while in almost ¼ of them (4 of 17) the participants talked very much; using the keywords in Table 8 (on the previous page) over 50 times in each of the four interviews.

Continuity with history

In over 40 per cent (7 of 17) of the interviews, participants expressed how it was nice to feel a historical continuity in Varberg. This positive attachment to the local surroundings – which could be defined as a sense of place – was expressed in similar ways in these seven interviews, where buildings, houses and/or history were used as starting points for the discourses. One of them said that it was nice with old buildings and that it was nice to identify oneself with the surroundings. Four expressed in very similar ways how they appreciated that old houses and buildings were preserved, and two of these four explicitly stated that they like to look at old houses. Three of the participants made a connection to history; to "have history present", "feel the tide of history" or that a "connection to the history is important".

Identify with and feeling at home in the built environment

The expressed connection to history made one participant feel tempted to walk more often, through being able to recognise and recollect the urban milieu from his memories of the town back to his childhood while walking in it. In Varberg, a lot of buildings have been preserved from the past, which seems to aid in giving people a place attachment to their town. Also, the modifications that nevertheless have been made did not alter the general structure of the town centre with its small-scale building structure nor the rectilinear street pattern with quite small blocks.

Participants liked to see old, preserved buildings

It was appreciated to be able to observe old buildings while walking; in seven of seventeen interviews (over 40 per cent), participants spontaneously said so. Old wooden houses were appreciated as being beautiful by two participants. One of them also commented that it was also OK with new houses as long as they blend in with the existing buildings. A mix of old and new was seen as nice by the same participant. The building 'Mejeriet' as can be seen in Figure 89 (on the next page) was mentioned by him as a positive example of a house that blends in thanks to alluding to an old style of façade.

Figure 89. The new 'Mejeriet' building was appreciated for blending in well with the old surroundings.
Photo: Author, 2019.

The environment close by is cosy, according to another participant, that said that it is nice that they have preserved old houses with beautiful architecture. It seems clear that the preservation of old buildings in the Varberg town centre is a quality well-appreciated. New buildings could also be accepted, but they should adapt to their surroundings rather than rupture too much in style, size, and height.

It is not only the style of buildings that matter but their height also seems to be even more important. The Varberg town centre has a scale of buildings that are predominantly two storeys high. This low scale with less than four storeys was appreciated as charming; one participant expressed the view that new houses should be built with approximately the same number of stories and also take the façades of the surrounding buildings in consideration when being planned. The participant said: "It is still possible to build with a small-town idyll in mind, and preserve that part because it is nonetheless an old town we live in." This participant's view is thus that modern additions to the townscape should fit in with the old (i.e. existing) building context.

One interviewee enjoyed watching old houses, for example at the 'Norrgatan' street as can be seen in Figure 90, a street which she chose frequently for her walks precisely for this purpose. Another interviewee liked the fact that buildings were protected as cultural heritage, and cannot be changed. Buildings situated around the town square are examples of this protection, which creates a town square environment with older houses seen as pleasant by the same interviewee.

Figure 90. The street 'Norrgatan' – appreciated for its old, decorated buildings.
Photo: Author, 2019.

A connection to history was important

One interviewee summed up the connection to history quite well: "For me, when I walk… houses and settlements, well, it makes me feel the tide of history, one feels that one is a part of the history somehow, which you do not feel if everything is only new and modern". Older houses remind of the history according to her, but she also argued that even though one

should preserve old buildings in the town core, those alterations that have been made then become forgotten and blend in. The participant chose to walk across the town square "because I enjoy it, it is fun to see how the buildings look like there […] I feel a little of the tide of history.". The same participant liked the streets 'Norrgatan' and 'Kyrkogatan' as well as the old cemetery 'Kyrkogården' the best as they provided older environments that remind of the history. Another participant found it positive that it is made the most of what Varberg has had and has been; that this is present in the contemporary townscape made up of streets and places so that we do not lose our history.

Coherence in/of the built environment

In over 40 per cent (7 of 17) of the interviews, participants talked about the degree of coherence in the built environment (albeit using different phrasings). In six of these seven interviews, participants expressed concern about the densification projects in which the municipality of Varberg has put up new, higher, buildings in the historical centre of the town. However, one participant had a mostly positive view of densification. Two said that they liked to have an old building environment, or a mix of old and new buildings, of which one participant made an exact definition of what kind of buildings she wished to have: wooden houses maximum three storeys high, which are richly decorated. One interviewee expressed positively that Varberg provides a continuum of cosy environments in the town centre. Another participant expressed a desire for coherence; new buildings should blend in with the surroundings and have a similar height.

Effects on coherence from densification

The densification that has already taken place in Varberg was seen as negative by one interviewee – she said that the tall new buildings made near the Lorensberg area (as seen in Figure 91 and 92 on the following pages) do not belong together with the environment of Varberg. To have a place identification of the Varberg town centre thus seems to be connected to buildings limited in scale, especially horizontally. In contrast, another

participant saw the very same buildings as positive, and that the houses had been built gently. However, he saw a risk that the densification of the Västerport town district (yet to be built) would result in too high buildings that would block the feeling of proximity to the sea.

Figure 91. Contrast between old, low houses and a new block with up to six storeys in the town centre.
(The back side of the new block is shown in the next figure.)
Photo: Author, 2019.

The densification has in some parts been going on a bit violently, said another participant. In case new buildings had to be constructed, it seemed like he preferred them to be of a similar height as the existing building stock. New big, high buildings would alter the whole impression of the town; the result would be both a "densification and an elevation", he said and added that to build new six-storey buildings would be two storeys too tall. (New buildings with up to six storeys as part of the densification can be seen in Figure 91 above and Figure 92 on the next page.) New buildings should be three storeys high or less because to bombard in altitude would change the character of the town, according to the same participant. To sum up, his opinion was that the densification has been excessive; too big and too high. If high houses were continued to be built the whole town setting is in risk to be altered. Instead, buildings should be maximum three (or at the very most four) stories high.

Yet another interviewee stated that building six-storey houses would destroy the cosy environment: "...we see these houses now, very nice, well they are wooden houses, small and low, and then suddenly it sticks up something like this…". She liked that the existing buildings were human-friendly built, but new buildings with six storeys would be less appealing. It was seen as sad if existing buildings needed to be torn down. High houses would transform the small-town idyll and are not pleasant; for example, the participant in question did not like the new buildings at Campus Varberg (shown in Figure 15, page 81).

Figure 92. Densification with a block with up to six storeys in the border of the centre of Varberg.
(The front side of the same block was shown in the preceding figure.)
Photo: Author, 2019.

A plan for the town is needed, according to another participant. High buildings here and there strip away the character of the town. Harmony in edification is needed. The densification was described also by another interviewee as too excessive but, on the other hand, she also said that the result of the densification can be good and that new housing is needed. She also appreciated a street with quite new buildings around it, tall on both sides, which gave it an urban character. But to erect high buildings in a residential area with detached houses was seen as odd.

An old built environment, or a mix of the old and new, was desirable

Revisiting Campus Varberg, one participant had a different view, when he said that "but then we have some modern, and that needs to exist as well". Another interviewee appreciated modern elements that fit in the old culture, in regards to decoration and such. Yet another one appreciated old or mixed buildings in streetscapes, but did not like "square boxes". She said: "Houses that are nicely built, not necessarily older houses, but that they are of appealing architecture". She also wanted houses of maximum three stories. New houses that pick up something of the old character was appreciated by another participant. Yet another interviewee appreciated and found it nice with a combination of both old and new buildings: "well, mixed is best".

Coherence: a positive experience of Varberg today but also concern for tomorrow

Figure 93. Buildings with two (or three) storeys are characteristic of the Varberg town centre.
Photo: Author, 2019.

Coherence gave continuity and a continuum of cosy environments, said one interviewee. Another participant said: "I think one should see it as a larger whole, so that one thing fits with the other". She also said that the two to three storey houses in the 'Söder' and 'Norr' neighbourhoods blend in within the surrounding townscape. To maintain this continuity it seems crucial maintaining a similar scale (i.e. height) when constructing new buildings in the context of the town centre. (The scale of the town centre is shown in Figure 93.)

Coherence was not only seen as something existing currently in the urban context, but also a concern for the Varberg town of tomorrow. One participant stated that you need to try to adapt the new to the old. Another participant said: "not a bit low there and high here, rather, a little bit more building harmony".

Synthesis of Place attachment

On the introductory question 'What do you think is positive with your vicinity area in regards to walking?' three responses were about the preservation of the built environment; participants liked how old buildings had been preserved intact, with their detailed façades. Another response to the same question dealt with identification; the participant found it positive that he was able to identify and recognise the built environment around him.

The free conversation made up the lion part of the interviews, with only spontaneous conversations on place attachment (i.e. without prompted questions). In over 40 per cent (7 of 17) of the interviews participants spontaneously expressed that it was nice to experience a historical continuity in Varberg, using phrases such as to have "history present" or that a "connection to the history is important". In seven interviews participants said that they appreciated observing old buildings while walking, one participant put forward the theme of how the old built environment made her "feel the tide of history".

Additionally, seven interviews contained conversations about the coherence of the built environment. Participants expressed concern about the densification project in which the municipality has permitted new buildings up to six stories high in the town centre in an existing built environment predominantly two stories high. According to one interviewee, coherence gave continuity and a continuation of cosy environments. Another participant found it important to maintain a similar scale (i.e. height) when constructing new buildings in the town centre and yet another interviewee said that "not a bit low here and high here, rather, a little bit more building harmony".

In summary, in over 40 per cent of the interviews participants spontaneously talked on the theme of place attachment. They wanted to have a coherent built environment with preserved old buildings in Varberg, and if it was necessary to complement with new buildings they should be of a similar scale and height as the existing built environment in their town.

5.7 Safety

This section describes how the participants associated safety with the walkscape (including other persons in the environment). Both the sense of safety and factual safety are important here. The section starts showing how the subcategories were developed according to the participants' discourses (below). In continuation, the practical results are outlined, divided into two main parts: safety from crime (page 221) and safety from vehicles (p. 224). Safety from crime was associated with meeting people on foot that could be dangerous. Safety from traffic had to do with the potential dangers and nuisance emanating from people driving cars or bikes. Finally, at the end of this section, the findings are summarised in a synthesis (p. 228).

Formation of the category

Introductory responses related to Safety

Within the category of Safety, the participants' responses could be categorized into four codes shown in Table 9 on the next page: ***See-through places*** (blue), ***Lack of lighting*** (green), ***Barrier of ring road*** (yellow), ***Cars*** (light brown), ***Traffic works*** (red) and ***Bikes*** (purple). All questions could be answered with multiple responses.

On the question '*What do you think is positive with your vicinity area in regards to walking?'* two responses were made. One response was classified in the code named ***See-through places,*** in which the participant stressed that she preferred places with open sight-lines and broad views instead of bushes, where criminals potentially could hide. The other response dealt with ***Cars***; the participant explained that Varberg had low amounts of car traffic in general, but how she nevertheless preferred to walk on streets with as little motorised traffic as possible.

Table 9. Distribution of responses to introductory questions belonging to the Safety category.
Source: Author.

Introductory questions	**Responses within category Safety**							**Grand total** for all categories
	See-through places	***Lack of lighting***	***Barrier of ring road***	***Cars***	***Traffic works***	***Bikes***	**Total** (% of grand total)	
2. Which are the most common reasons that you walk here?							**0** (0 %)	**41**
3. What do you think is positive with your vicinity area in regards to walking?	**1**			**1**			**2** (7 %)	**30**
4. What do you think is negative with your vicinity area in regards to walking?		**2**	**1**	**2**	**1**	**2**	**8** (42 %)	**19**
6. What in the outdoor environment makes you walk more?							**0** (0 %)	**28**
Total	1	2	1	3	1	2	**10** (8 %)	**118**

The next question was *What do you think is negative with your vicinity area in regards to walking?*. Here a large number of responses (42 %) were associated with the **Safety** category. Two responses were made on the ***Lack of lighting***. In the code ***Barrier of ring road***, it was mentioned in one interview how the ring road around central Varberg limits possibilities to

cross safely by foot. Two participants concluded that ***Cars*** influenced their walking experience negatively, while one participant was limited by the plentiful ***Traffic works*** that took place around town. Finally, two responses were sorted into the ***Bikes*** code, one of them detailed how cyclists encroached on the pedestrian space making it hard to relax while walking.

Methodology of finding relevant interview excerpts

First, all interviews were read through line by line and passages that were associated by safety and security were signalled by the addition of a marker in pink colour. From these excerpts, words were selected that were repeatedly found to find words for a keyword search. These words are listed in Table 10 shown on the next page. The keywords were arranged in a) Emotional response, b) Fear of crime and c) Fear of traffic. In the first subcategory named *Emotional response*, there were words associated with feelings (such as being scared). Secondly, the subcategory named *Other people on foot: visual monitoring possibilities towards perceived risks* related to the fear of crime. In this subcategory, words were placed that the participants used when describing unpleasant situations such as the sudden appearance of strangers on foot along the walking route. This kind of situation had either already occurred to the participants or was something they feared could occur. Finally, the third subcategory named *Motorists or cyclists: perceived risks and mitigation strategies* relates to car and bike traffic in the walking environment and includes both the nuisance from traffic as well as the perceived risk of traffic accidents.

The participants' discourses using words in the first *Emotional response* subcategory was connected to either fear of crime or fear of traffic. For the text that follows it resulted to be more logical to not have a separate subsection about emotions, but rather to blend in these within the two remaining subsections of fear of crime and fear of traffic. Therefore, the text that starts after the summary table below only has two subsections: *Safety from crime* and *Safety from traffic*.

Table 10. Number of keywords per interview uttered within a context of sense of safety and security.
Source: Author.

Subcategory	Keyword	Total # of interviews with keyword in relevant context	# of keywords in relevant context, separated by interview *(interview number)*																	Total # of keywords in relevant context	Original keyword in Swedish
			(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*	*(8)*	*(9)*	*(10)*	*(11)*	*(12)*	*(13)*	*(14)*	*(15)*	*(16)*	*(17)*		
Emotional response	**scared**	**4**	1		1							1							5	**8**	*rädd*
	(un)safe	**6**	1		2	1		9	1										2	**16**	*trygg*
	(in)secure	**5**	2		4			2	6		2									**16**	*säk*
	dangerous	**3**	2		3														5	**10**	*farl*
Other people on foot: visual monitoring possibilities towards perceived risks	**lighting**	**4**			15			8	6			1								**30**	belysning
	dark	**5**			9			3	2		1								3	**18**	mörk*
	bush	**3**			1			14	5											**20**	busk*
	gloomy	**3**			1			4									2			**7**	skum*
Motorists or cyclists: perceived risks and mitigation strategies	**drive**	**10**	13		2	1		2		3	4	1	4			1			3	**34**	kör*
	car	**9**	11		1	2		2	3	1	5							2	2	**29**	bil*
	bike	**7**	31			1		22	29	26	7		2							**118**	cyk*
Total			61		39	5		66	52	30	19	3	6			1	2	2	20		

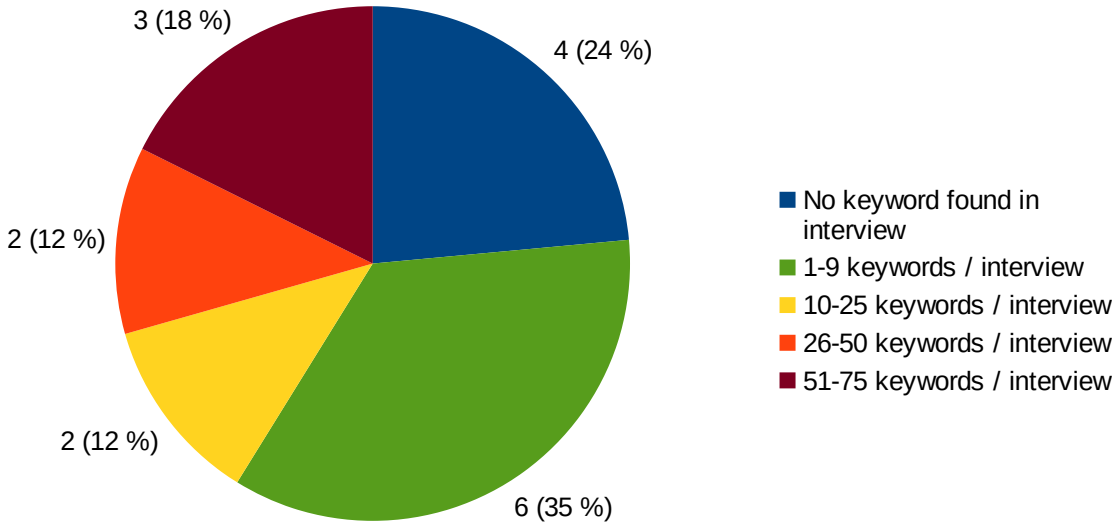

Figure 94. Number of keywords used in a safety context found per interview.
Source: Author.

The proportions of usage of the keywords related to safety selected for analysis in the interviews are shown in pie chart form in Figure 94 above. It can be observed that at least one keyword related to safety was used in 13 (76 %) of the interviews. Five of the interviews (30 %) had a quite intense keyword usage (26 keywords used or more), and of these three interviews (18 %) had a very intense usage (more than 50 keywords used). It should be noted that the participants were not asked specifically about safety or security; the topic was brought on by the participant themselves.

Safety against crime: visual monitoring possibilities

Some participants feared crime and some did not. In three of the 17 interviews, the participants stated that they felt safe while walking, even in the evenings and nights. For example, the first of these participants said that he never had felt unsafe walking in Varberg, although he also made the reflection that as being male he may feel safe more easily in comparison to women. The second interviewee stated that she could not find anything negative about the walking environment in the town of Varberg. She said that the town is well lit up so she is not afraid of walking alone in evenings. The same interviewee also found that public lighting worked well. The third participant found it positive that the town centre of Varberg, in which she lives, has no gloomy backstreets – the streets are broad and open without shady alleys which means that there is no limitation towards walking alone home in the evening. It can be observed that two of these three participants connected feeling safe to have a good visual overview of the surroundings while walking. All these three participants, which commented on feeling safe as pedestrians, have in common that they generally walked in the town centre, which is well-lit and is quite well-used by pedestrians in general. On a side note, yet another participant was simply appreciative regarding new lightning in a natural walking area, which he said made it is possible to walk at night without being completely in the dark.

There were also negative points being made on safety by participants. Four participants talked about the lack of safety. We will now look into what these participants saw as the problems, and what their proposals for solutions were. Interestingly enough, the thoughts of these four participants had a lot in common. They all discussed the limited visual overview along walking routes due to darkness and/or due to dense bushes; both these aspects were connected to a feeling of insecurity in regards to crime. Lighting/darkness was discussed by all these four participants, and the extent/proliferation of bushes was discussed by three of them. Both darkness and bushes countervail the need for visual monitoring of the immediate environment to verify that no one is present nearby that could be a potential assaulter. Put in more general terms, these four participants connected perceived safety from

crime with the need of having a visual overview of the immediate environment around them while walking.

The argument of one participant encapsulates everything quite nicely. The participant argued precisely that there are two key issues for unsafety: the degree of darkness and the extent (and proliferation) of bushes and shrubs. According to her, the first key issue of lighting is not only about the presence of public lighting, but also its quality. She also stated that good quality light from above is needed. However, she was critical of sidelights in eye level that can dazzle, as those present along the seaside boardwalk as seen in Figure 95.

Figure 95. The beach-walk 'Strandpromenaden' with side lighting that can dazzle.
Photo: Author, 2019.

The other key issue, she said, is about the maintenance of greenery in public spaces. She preferred the bushes and shrubs to be kept small and to have three to four metres between trees, arguing that this makes the outdoor environment safer as the view of the space opens up and you get a better visual overview of the surroundings while walking.

Another participant explained that she felt unsafe when walking during the evening as it is dark. She exemplified with how she walked back from 'Varberg Arena' one evening, and

it was pitch-black as there were no street lights near the arena. The same participant also said that she does not walk alone after five o'clock in the afternoon, and narrated an experience she had during a weekend walk (together with a child) when a guy suddenly jumped up from behind a bush. In Figure 96, the 'Påskbergsvägen' street is shown, where the participant in question commented on how large bushes bring unsafety in regards to crime.

Figure 96. Large bushes were associated with unsafety.
Photo: Google Streetview (2010). Used with permission according to Google's policy of fair use.

According to the same participant, the municipality should open up environments; to make walking environments more transparent for safety as well as for beauty. The same participant argued that this proposed change would bring safety benefits as it is easier to spot any criminals that could hide in shrubs and bushes. The beauty benefit would be to open up sight-lines towards the ocean. She also said that this opening-up of environments should be combined with better lighting, benches, greenery and decoration, and finally argued that from a security point of view better lighting is an important issue. For another participant, the darkness in her neighbourhood limited her possibilities to walk during winter. She felt unsafe when walking alone, due to reading about crime in the news, and said that there is a risk of assault when dark; especially it can feel unsafe to meet a "gang" of people when walking. According to her, lighting can help to a certain extent; it is important both for

feeling safe and for not to stumble. Therefore, she would like to have good lighting and fewer shrubs.

Another interviewee lived in the 'Sörse' area. She said that 'Sörse' is very dark, which makes the area feel shabby and that more lighting is needed, as well as more seating. In the 'Påskbergsskogen' forest, she thought that the fear of incidents that withhold people from walking there could be somewhat mitigated by seating places with lights; a sense of safety through cosiness. In general, safety could be improved through better lighting, as people are afraid when being in darkness, she said. Another way of making people feel safer would be to inform about that the actual safety is all right, thus not having any reason of being afraid, and in this way mitigate a downward spiral of being afraid of each other. Finally, she stated that neighbourhood security surveys through group walks could be performed to make more people feeling secure enough to get out and walk.

Safety against cars and bicycles: risks and mitigation ideas

Both bicycle and car traffic provided inconveniences and threats to the safety of the pedestrians interviewed. In almost two-thirds (11 of 17) of the interviews, safety against traffic was discussed in one way or another.

The most predominant category was unsafety in relation to car traffic. Tensions and unsafety because of car traffic were brought up in over 40 per cent (7 of 17) of the interviews. However, one interviewee stated that he did not find car traffic a problem whilst walking. Another common category was the unsafety because of cyclists, which was a topic in five (almost 30 per cent) of the interviews. However, the interviewee that did not see any problems with car traffic had no problems with cyclists, either.

We will now delve into what the participants have to say about how car traffic and bicycle traffic affect them in their role as pedestrians. The main point of one interview was how conflicts between cyclists and walkers resulted in unsafety. The signage was, according to the interviewee either unclear, confusing, illogical or missing. She was afraid of being run over by someone on a bike. According to her, the traffic ordinances and laws were not

followed by cyclists, who encroached on the space that was reserved for pedestrians, leading to a chaotic situation. To alleviate this problem, she proposed more clear signage and street markings, providing for a separation of the areas exclusively reserved for pedestrians versus the areas designated for cyclists. There should also be more zebra crossings, clearly signed and marked. She also saw carfree areas in a positive light. The situation now was messy, she said, with many transport modes mixed, with pedestrians in conflict with not only bikes but also cars.

Another interviewee only had a few comments about safety, and he had in contrast to the other interviewees an exclusively positive picture of the subject. He commented that carfree streets make it possible for a pedestrian to amble freely in a relaxed way without having to consider motorised traffic. Regarding the bicycle situation, the same participant thought that Varberg, being a small town, did not have so many bikes that you had to take care not to be run over, as could be the case in bigger cities. He also thought that Varberg provided a functioning co-existence between pedestrians and cars.

Yet another participant talked about how the unclear separation between cyclists and pedestrians makes it hard to know who should be where. According to her, the result was that pedestrians feel ambiguity about who goes where and therefore need to watch out for cyclists that could appear from many directions. She said: "That is a thing that is a bit weird, that you don't know where you should… where you are allowed to be.". One way of making things more clear according, she said, would be to have better signage to show where cyclists should bike, and where pedestrians should walk as well as more traditional zebra crossings.

The next participant talked about the conflict between cyclists and walkers. She said that cyclists bike on the pavement, often in high speed. This made her feel very insecure while walking. Before she crosses a zebra crossing she always checks, but cyclists do not stop to let her over (something which they are required to do according to Swedish law). The participant in question would like to have more space for cyclists so that they do not ride their bicycles on the pavement. She would prefer to have separated spaces for pedestrians and cyclists; a better structure of separated bicycle and walking paths. This would bring better order through the resulting separation of the paths of cyclists and walkers.

Figure 97. Conflicts with cyclists were connected to lack of pedestrian space and unclear signage.
Photo: Author, 2019.

Yet another interviewee stated that it is a problem that cyclists do not follow rules, for example by cycling in the wrong direction on one-way streets. Additionally, he meant that the traffic environment in Varberg is formed in such a way that the cyclists have higher priority than pedestrians. For example, this is shown by the space allocation; on a street that we passed by during the interview, he commented that cyclists were allocated three times as much space as pedestrians. He preferred to have the pedestrian area of the pavement separated from the cycle area with a line of cobblestones. (In Figure 97 an example of space allocation between pedestrians and cyclists is shown from Varberg town centre.)

It was also pointed out in another interview with a couple, that one negative thing in Varberg is that separation between pedestrian and cyclists is lacking; resulting in a sometimes aggressive attitude between the two groups. Another traffic security shortcoming described in the same interview was the barrier of high-speed traffic lanes around the central area of Varberg. Pedestrian underpasses under the ring road are far in between and no zebra

crossings exist there, so people often have to cross the road at grade. In "Ringvägen", a smaller road which arcs around the central parts of Varberg, there are zebra crossings. However, not all car drivers stop there as they should when seeing a pedestrian waiting to cross and some of the drivers have their eyes on their mobiles instead of the road, according to the female participant. The male participant commented that he would prefer to have the legal speed limit lowered from 40 to 30 km/h before the pedestrian crossing.

In yet another interview, a participant discussed the topic of crossing the street, and how she did not like to walk on the 'Västra Vallgatan' street (as can be seen in Figure 66 on page 169) which runs through the town centre with quite car heavy traffic. The car traffic affects her negatively as a pedestrian as car drivers drive fast and also sometimes honk to make pedestrians walk faster when crossing the road in front of them.

To make car traffic more pedestrian-friendly 'walking speed streets' have been introduced in the town centre; streets where cars are only allowed to travel at walking speed (less than 10 km/h). One interviewee was positive to the transformation that had been made of some streets into walking speed streets, where the motorists both should drive slowly and be considerate to pedestrians and cyclists. Though sometimes the car drivers did not discern a walking speed street from a 'normal' street, according to the same participant.

Another interviewee had a first-hand experience of being hit by a car recently, as a car collided into him in his electrical wheelchair, while he crossed the street on a zebra crossing. He did not provide any more details of what happened, though. Someone else stated that the walking speed streets were somewhat impractical as she found them ill-defined – who should walk/drive where? – and too narrow for cars to pass by. However, she appreciated the car-free inner precinct of 'Sörse', the neighbourhood where she lives, as it is calm and you do not need to keep watch on if cars are coming your way. Finally, one participant stated that a wide road (named 'Kattegattsvägen'), which we walked by in her neighbourhood during the interview, is very transited by cars, moving at high speeds. This makes it difficult to cross the road which may impede people from going out to take a walk. Sometimes car drivers compete in illegal speed races at that road, the participant added.

Synthesis of Safety

The main findings of this chapter are that a majority of the pedestrians interviewed feel unsafe in some way while walking. The perceived unsafely is related to crime (mostly by other people on foot) and traffic (people in cars or on bicycles).

Regarding safety against crime, participants in three of the 17 interviews stated that they felt safe while walking, even in the evenings and nights. In four other interviews, by contrast, participants talked about the lack of safety. In all these four interviews, the limited visual overview along walking routes caused by lack of adequate public lighting and/or dense bushes was discussed. Both the absence of lighting and the proliferation of dense bushes were connected to a feeling of insecurity in regards to crime. For improving this situation, the participants have clear priorities: to provide high-quality lighting from above (that does not blend) and keep bushes tidy and low to achieve good visual monitoring possibilities over the immediate surroundings.

Regarding safety from traffic, this issue can be further separated into a) safety from bicycles and b) safety from cars. For the first part, several interviewees wanted to implement a better separation between cyclists and pedestrians and better signage, as participants feel unsafe or inconvenienced because of cyclists during their walking trips; they stated that the cyclists often do not respect traffic rules. They exemplified how this manifested itself in cyclists biking on the pedestrian area of the pavement, or not stopping at zebra crossings when pedestrians intend to cross. Participants also want to allocate more space for walking. Car traffic was also stated to be a problem, due to high speed, heavy traffic or barrier effect from large roads. However, here there was not a single straightforward solution presented in unison by the participants in this case; some were positive to walking speed streets, others to lower speed limits and yet others to carfree areas.

5.8 Social aspects

The topic of this section is how environments and their artefacts help or hinder social interaction in built or natural environments in relation to walking. Firstly, the process of forming subcategories through analysing the interview material is detailed (below on this page). Secondly, the findings from the walk-along interviews are outlined, starting with walkscapes connected to walking for being alone (page 234), and moving on to address walkscapes associated with being social (p. 235). In these two sections, the discourses of the participants are connected to the environments traversed during the interviews, aided by selected photos of the places in question. Additionally, concrete examples of how artefacts in the environment could be designed are provided, based on participant input. Finally, this section ends with a synthesis of the findings (p. 242).

Formation of the category

Introductory responses related to Social aspects

In the Social aspects category, responses to the introductory questions from the participants were sorted into five codes shown in Table 11 on the next page: ***Go to market square*** (blue), ***Meeting people*** (green), ***Be with other people*** (yellow), ***Calmness*** (red) and ***Happenings in town centre*** (purple).

The question *What do you think is positive with your vicinity area in regards to walking?* had four responses in the Social aspects category. Two of these responses were in the ***Go to market square*** code, of which one participant said that she liked to see the street life (or hustle and bustle) with many people around on the square during market days. Another response on the same question was sorted into the ***Be with other people*** code, where the interviewee mentioned social relations as a reason for walking. Finally, there was also one response to the same question sorted into ***Calmness***, where the participant said that she liked the quietude of wandering in nature.

The last question – *What in the outdoor environment makes you walk more?* – had three responses in the Social aspects category; twice in interviews where ***Meeting people*** was one of the reasons for walking and once in ***Happenings in town centre***, where the interviewee said that he liked to move about in the centre in summer when there where outdoor festivities.

Table 11. Distribution of responses to introductory questions belonging to the Social aspects category.
Source: Author.

Introductory questions	**Responses within category Social aspects**						**Grand total** for all categories
	Go to market square	***Meeting people***	***Be with other people***	***Calmness***	***Happenings in town centre***	**Total** (% of grand total)	
2. Which are the most common reasons that you walk here?	**2**		**1**	**1**		**4** (10 %)	**41**
3. What do you think is positive with your vicinity area in regards to walking?						**0** (0 %)	**30**
4. What do you think is negative with your vicinity area in regards to walking?						**0** (0 %)	**19**
6. What in the outdoor environment makes you walk more?		**2**			**1**	**3** (11 %)	**28**
Total	2	2	1	1	1	**7** (6 %)	**118**

Methodology of finding relevant interview excerpts

To find relevant interview passages that dealt with **Social aspects**, all 17 interview transcripts were first read through manually. Relevant passages were marked in red colour to be able to find them easily afterwards. This manual read-through resulted in finding social aspects in eight interviews, in which the participants discussed the social aspects related to the surroundings we walked through. Five of these interviews mentioned social aspects in a rather brief manner. One interview addressed social aspects as a recurring theme. Finally, two of the interviews discussed social aspects as a detailed, main theme. In the last of these two interviews the participant provided very concrete and detailed examples of her wishes for social artefacts in the walking environment.

To find complementary passages on social aspects in other parts of the transcripts than the ones already found through the manual read-through, a keyword search was prepared. First I selected keywords that were commonly found in the passages I had found through manual reading. These keywords were searched for in all of the interview transcripts. The keywords found were examined in their textual context. Those keywords that were uttered in a context related to social aspects of walkability were selected for further analysis. The keywords can be found in Table 12 (on the next page), which also shows how many keywords have been said within a social context in each interview and in total.

These keywords have been categorised in three subcategories, according to their main use in the free-flowing, main parts of the interviews. The subcategories are: a) *Walking for the need of being alone*, b) *Walking for the need of being social* and c) *Environmental affordances that facilitate social interaction*. We will soon return to these subcategories, as they will be used as subsections that structure the interviews' contents in the text that follows.

Table 12. Number of keywords per interview uttered within a context of social aspects.
Source: Author.

Subcategory	Keyword	Total # of interviews with keyword in relevant context	# of keywords in relevant context, separated by interview *(interview number)*																	Total # of keywords in relevant context	Original keyword in Swedish
			(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*	*(8)*	*(9)*	*(10)*	*(11)*	*(12)*	*(13)*	*(14)*	*(15)*	*(16)*	*(17)*		
Walking for the need of being alone	**peace**	**9**	2	2	3	3				1	1	3						1	1	**17**	lugn*
Walking for the need of being social	**social**	**2**									1	2								**3**	social*
	meet	**3**									4						1		1	**6**	möte*
	talk	**4**		1							5	4							1	**11**	prat*
	encounter	**3**					2				9	5								**16**	träff*
	gather	**1**																	2	**2**	saml*
Environmental affordances that facilitate social interaction	**sit down**	**6**	1			1		1	1			3							7	**14**	sätta*
	sit	**7**	1	1				2	1		6		1						10	**22**	sitta*
	bench	**4**					1				5				1				14	**21**	bänk*
Total		15	4	4	3	4	3	3	2	1	31	17	1		1		1	1	36	112	

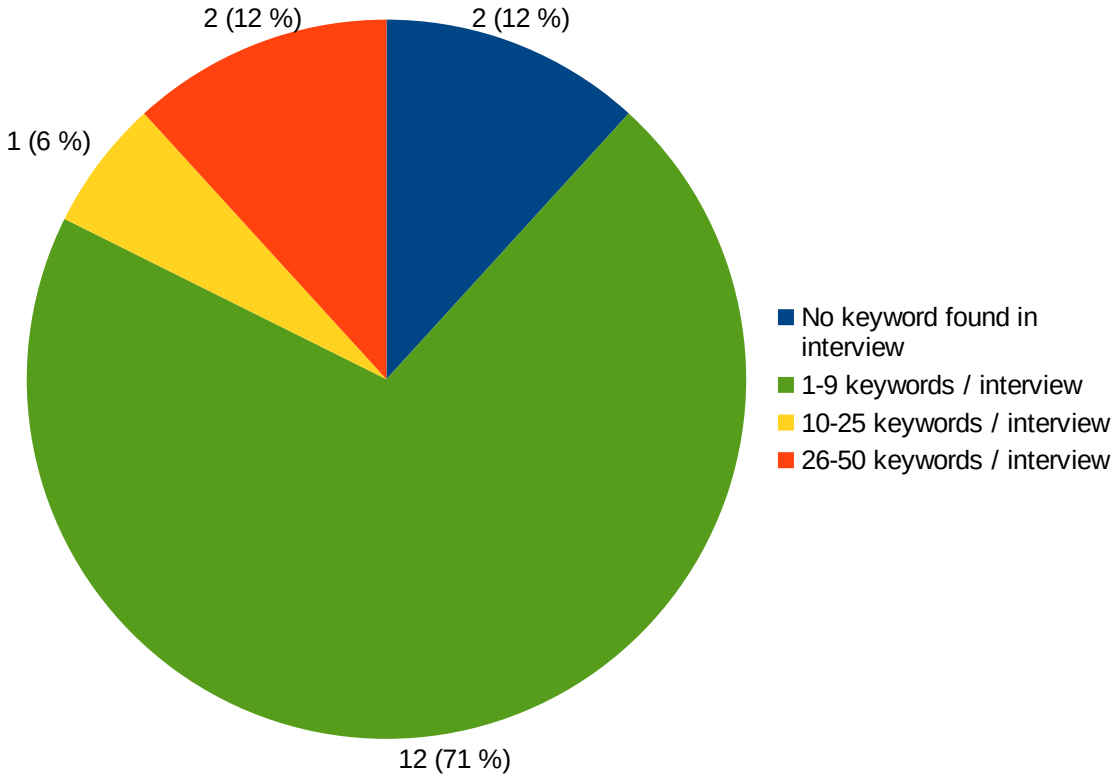

Figure 98. Frequency of keywords used in the context of 'Social aspects' found per interview.
Source: Author.

The proportions of usage of the social keywords selected for analysis in the interviews are shown in pie chart form in Figure 98. As can be seen, 15 (88 %) of the interviews had some mentioning of the keywords in a social context. Of these, three (18 %) mentioned the keywords in total 10 times or more. It should be noted that the participants were not questioned about social aspects, which means that all mentions were spontaneous.

Walking for the need of being alone

Walking in "your own bubble"

Walking is connected both to "time alone" and "social time", according to participants. One interviewee valued to sit in calmness on a park bench during walking trips. Another participant was asked about her main reasons for walking and answered: "It is to get fresh air, just go out looking for berries or something in nature, or flowers, or to just get that calmness and so." In four other interviews the advantage of being able to be alone in a calm manner, without having to talk with anyone, and feel at ease that way, was mentioned. To walk alone was described as making it possible to "be in your own bubble" by one participant or to have "time alone" by another one.

The forest as a walkscape for wandering alone

One participant mentioned that she liked to walk alone and be by herself although, or rather because of, she had a very active social life. She opted for walking along the boardwalk next to the ocean. However, in summer she altered the route to instead walk in the 'Påskbergsskogen' forest. She changed walking environment in this way because there were too many people moving along the boardwalk in summer; she did not want to run into people she knew as she preferred to walk alone to "clear the head". Spring and autumn were her favourite seasons when there are fewer people around than in summer.

Another interviewee also liked walking on the boardwalk when there were not too many people but had another strategy to avoid the crowds: to walk in the early morning when there were only a few other persons around. Yet another participant described enjoying walking alone, getting "time alone" while walking in her preferred walking environment; the forest. Precisely walking in the forest was seen as a good environment in a psychological sense to care for oneself and one's health also in another walk-along interview.

Parks and urban greenery made for relaxation

Parks and greenery were directly connected to calmness and relaxation by three interviewees. One of these said that he valued the soothing experience of visiting a small park quite a lot, walking from the town centre. The second of these three appreciated to sit down on a bench in the park-like small cemetery in the town centre. The third participant mentioned how it was relaxing to walk on a path in a neighbourhood with a lot of nature.

Car traffic disturbed the feeling of calmness

While soothing greenery had a positive connotation towards walking, disturbing car traffic was viewed negatively in three interviews. Car traffic disturbed the walking peace on the street most heavily trafficked in the town centre, according to the first of them. The second participant mentioned that a street with a lot of car traffic was negative and that she preferred to walk on another, calmer street. The third interviewee explained how the internal carfreeness of a housing estate contributed to making it really nice and calm to walk there.

Walking for the need of being social

Social walkscapes

Besides being associated with 'alone time', walking can also connect to social needs. In fact, in one of the interviews, both the quality of walking alone and the fun of meeting people while walking were discussed. In this interview, walking was associated with getting to know people you see around you. Two other interviewees talked about the social connection to walking; i.e. that it was nice to meet people during a walk. Urban walking was connected with the fulfilment of social needs (rather than with needs to be alone). To have many available outdoor activities in the town was a social motivator for one participant to walk more during summer. Two other interviewees mentioned meeting people on town square market days while walking. The town square was an attraction, full of life on the market days (Wednesday and Saturday) according to the first of the two participants, a concentration in place and time of people, who like to meet and greet each other. The second of the two

described how he went to the town centre and the adjacent harbour, and that he enjoyed that he always could meet people there. The town centre was also mentioned as a meeting place during walks in yet another interview. In two of the interviews, it was stated that meeting places are important along walking routes; we will return to the theme of meeting places in the next section. Walking environments were seen as places where new social contacts could be made by the participants. Urban environments were connected to "social walking", while natural environments seemed to be predominantly connected to "alone walking" and, to a lesser degree, to "social walking". One single interviewee mentioned a natural setting connected to social walking: the seaside boardwalk on Sundays as a place and time where one encounters a lot of people. However, it was much more common to associate walking for social purposes with an urban setting; this was done in five (almost 30 per cent) of the interviews. The question is then how to design environments and artefacts in them to cater for social needs as part of walking, which is precisely the next topic of this text.

Environmental affordances that facilitate social interaction

Some interviewees had specific wishes for the design of walking environments for social needs; wishes that were associated with places, activities and artefacts that were experienced during walking routes. Artefacts that enabled or hindered social interaction, either already existent or improvements wished-for, were mentioned in six (35 %) of the interviews.

Seating

The most common type of artefact mentioned was benches. For example, the benches at the side of the church towards the square were seen as a good place to socialise and talk in one interview, and other benches at the side of the square were appreciated for social purposes in another interview. The seating in a park was mentioned in yet another interview as a means to appreciate the beautiful parkscape. Another participant also appreciated to sit down on a bench in the park, and also was positive to the seating possibilities in the harbour and campus area. Yet another participant wanted more seating in open places with ocean views.

Figure 99. One "anti-social" bench.
Please note that it was not snowing during interviews. The photographs were taken at a later date when snow had arrived.
Photo: Author, 2019.

Existent seating that hindered social contact was also mentioned by one participant, e.g. seating situated in isolation as seen in Figure 99 above, with only one basic bench in a void. According to the same participant, only persons that were very tired and needed to rest would sit down on the bench, but that kind of seating does not facilitate social interaction. The spread-out collection of benches, shown in Figure 100 below, suffer from another type of "anti-social" design according to her; these benches do not invite people to socialise and be together, as they are arranged too far from each other.

Figure 100. Several "anti-social" benches far from each other.
Photo: Author, 2019.

Figure 101. 'Social' seating configuration (angle between seats) at the boardwalk.
Photo: Author, 2019.

In one interview, the need of social meeting places along walking paths was stressed, with wishes for benches situated together, such as the two benches together by the boardwalk (see Figure 101). The proposal also entailed a pétanque court for socialising.

Finally, one interviewee talked in detail of the kind of artefacts she would like to have in her walking environment to enable social contact and make it more popular to use the outdoor space we walked in. The most important thing for her was social seating. She said that people do not readily sit down next to someone on a single bench. Benches were seen in this interview as an enabler for creating meeting places; needed not only in an urban environment in the town centre but also in natural walking areas such as the forest. She thought that alternative seating layouts (other than a single bench) could help people sit down and talk to each other more naturally. She wished to have a feeling of "a sofa corner in nature" and a "living room feeling" – that the outdoor furniture setting should give a feeling of cosiness, drawing an analogy to a sofa corner in a living room. The seating could thus be

configured around a rectangular table, with a short bench for one person at one side and a longer bench in 90 degrees orientation. This would also make people more allured to sit down, and also to feel less afraid of being in the forest, she said. She would also have liked to have better seating at the interior courtyards in the 'Sörse' area where she lives; she describes the existing seating as scarce and situated in windy positions.

Other artefacts such as cafés, outdoor gyms, grilling areas, lighting and shelters

A café was mentioned in another interview as a place to socialise in conjunction with walks. Other artefacts were outdoor gyms, mentioned in three interviews, which were seen as a way of combining two good things: a healthy activity with the potential to social contact. Not only having outdoor artefacts, but the placement and grouping of them can be important. In one of these three interviews, it was suggested to put three outdoor gyms five meters apart, thereby catalysing contact as several persons can exercise next to each other. An example of an 'anti-social' artefact a participant pointed out was a grill and a bench (see Figure 102), that are situated in an eerie void in the middle of a grassfield in the 'Sörse' area. A single bench, situated far from the grill, making grilling and social contact impractical.

Figure 102. Grill in a void in the 'Sörse' area.
Photo: Author, 2019.

Figure 103. Grill in the 'Håsten' area (view towards forest).
Photo: Author, 2019.

Another interviewee mentioned a different grill (in Figures 103 and 104) in a forest by a pond, which she said was utilised by people during suitable seasons. This grill provides more potential for socialising as it has a table to gather around adjacent to the grill, making it possible to grill and talk at the same time, and also offers a nice view of a pond.

Figure 104. Grill in the 'Håsten' area (view towards pond).
Photo: Author, 2019.

One participant wished to have well-made lighting in a design that provides both physical light and decoration. Other ideas of hers were to have shelter for the rain and wind to be able to be in the outdoors in more weather situations and to bring coffee in a thermos to sit down and drink. As a good example of this, she mentioned the shelter with a grill that the local kindergarten has put up and made available for everyone to use (see Figure 105).

Figure 105. Wind shelter with a grill, set up by the local kindergarten in the 'Påskbergsskogen' forest.
Photo: Author, 2019.

Synthesis of Social aspects

In summary, different types of walkscapes seem to be connected to the needs of being alone and being social, according to the participants. Put in other terms, these interviewees seemed to couple one of the needs or objectives of the walking bout (being alone or being social) with the environment for walking they chose (natural or urban context, respectively).

Walking for being alone was associated with wandering in natural or park settings in eight (47 %) of the interviews. Natural settings void of people were sought after, with the participants showing flexibility through strategies of either displacement in time or place to obtain the degree of aloneness sought after.

Walking for social purposes, on the other hand, seemed predominantly connected to an urban, built environment. Participants spontaneously associated walking for social purposes with urban settings in five (almost 30 per cent) of the interviews, and walkscapes were seen as places where new social contacts could be made.

Socially arranged artefacts are three words that best summarise what the participants have said on the topic of how to adapt walking environments to social needs. *Social seating* is the most important aspect within this subcategory, which means seating arranged together, making it easy to talk to each other, e.g. a bench and a chair configured around a table. Additionally, other socially arranged artefacts such as grills and outdoor gyms have also been put forward by the participants as positive artefacts for socialising, provided that they have been designed correctly towards this purpose.

5.9 Health and wellbeing

This comparatively small section starts with a specification of what the participants answered to the initial obligatory questions about the subject at hand in *Formation of the category* below on this page. The three topics that emerged from the interviews concerning walking and health are then considered: *Wellbeing* (page 247), *Exercise* (p. 248) and *Calmness* (p. 248). Finally, this section ends with a *Synthesis* of the subject (p. 249).

Formation of the category

Definition

This section discusses walking and health and wellbeing. Health and wellbeing is here seen as a result of, or an objective for, walking. This is in line with how the participants viewed the subject at hand. It should be noted that due to this view of the subject, the category is primarily connected to walking as a performed or desired activity to achieve or maintain health and wellbeing. However, the subject is quite decoupled from the built environment, as the configuration of the surrounding environment was not discussed by the participants in this context. As a consequence, it was not possible to draw any practical lessons for the planning and design of the built environment based on this topic.

Introductory answers related to health and wellbeing

All participants answered the same open-ended questions in the initial phase of their interviews and could state multiple responses. Question 2, 3, 4 and 6 were suitable to organise via categories and codes. In Table 13 below, responses categorised into the current category are detailed, placed into five codes.

Table 13. Answer distribution to introductory questions belonging to the Health and wellbeing category.
Source: Author.

Introductory questions	**Answers within category Health and wellbeing**						**Grand total** for all categories
	Clean mind	Health	To get exercise	Like walking	Nice to get out	**Total** (% of grand total)	
2. Which are the most common reasons that you walk here?		3	5	1	6	**15** (37 %)	**41**
3. What do you think is positive with your vicinity area in regards to walking?						**0** (0 %)	**30**
4. What do you think is negative with your vicinity area in regards to walking?						**0** (0 %)	**19**
6. What in the outdoor environment makes you walk more?	1	2	2			**5** (18 %)	**28**
Total	1	5	7	1	6	**20** (17 %)	**118**

On the question *Which are the most common reasons that you walk here?* 37 per cent (15 of 41) of the responses could be placed in **Health and wellbeing**. Three responses were associated with the code ***Health***, two of these participants said they walked for health, and one said she walked to maintain fitness. Five participants responded within ***To get exercise***, describing how they got (extra) exercise through walking. One interviewee described how she enjoyed walking, her response was placed in the code ***Like walking***. Finally, in six responses it was described how it was ***Nice to get out***, three of them using those exact words.

On the last question *What in the outdoor environment makes you walk more?,* 18 per cent (5 of 28) of responses were associated with **Health and wellbeing**, which were sorted into three codes. The code ***Clean mind*** contained one response; the participant described how walking could help to energise oneself when being tired and clear one's mind. ***Health*** had two responses. In one interview it was described how walking was important to stay in physical health and to get calmness. In another interview, it was said that moving about on foot helps you to stay in shape. Two responses were coded with ***To get exercise***. One interviewee was motivated to walk to get exercise, and another one described how he liked moving about.

The subcategories that structure the interview keywords in Table 14 (p. 246) are the same as the codes. In the text that follows somewhat later, the discourses are however structured differently into three subsections: a) *Wellbeing*, b) *Exercise* and c) *Calmness*.

Keywords in interview

In Table 14 (see next page) the keyword search related to each code is specified. **Health and wellbeing** was not intensively discussed by the participants, as shown in Figure 106 below.

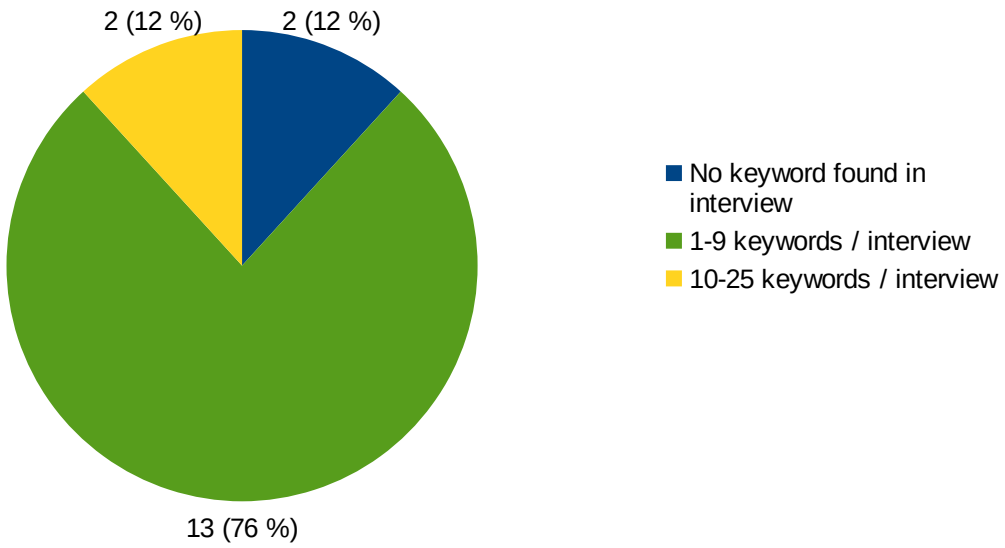

Figure 106. Frequency of keywords used in a context of 'Health and wellbeing' found per interview.
Source: Author.

Table 14. Number of keywords per interview said in the context of the category 'Health and wellbeing'.
Source: Author.

Subcategory	Keyword	Total # of interviews with keyword in relevant context	# of keywords in relevant context, separated by interview *(interview number)*																	Total # of keywords in relevant context	Original keyword in Swedish
			(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*	*(8)*	*(9)*	*(10)*	*(11)*	*(12)*	*(13)*	*(14)*	*(15)*	*(16)*	*(17)*		
Clean mind	**calm**	7	2	2	1					1	1	1							1	**9**	lugn*
Health	**health**	**2**			1						4									**5**	hälsa*
	feel	**3**		2	3						1									**6**	mår
To get exercise	**activity**	**6**		1		1			1		2				4		5			**14**	motion*
	exercise	**3**									1		1	1						**3**	trän*
Like walking	**nice**	**6**		4	1		1				4		1					2		**13**	skön
	like	**2**										1			1					**2**	tycker om
Nice to get out	**air**	**4**		1	1												2		1	**5**	luft
	get out	**7**		3	1		1				3		1				2	1		**12**	komma ut
Total		15	2	13	8	1	2		1	1	16	1	3	1	5		9	3	1	69	

Wellbeing

Physical health

In three interviews, walking in connection to exercise was spontaneously discussed. In one of these interviews, it was both mentioned in general how walking was important to keep active and healthy, and in specific how this achieved fitness could lessen joint pains. The two other interviews contained comments on the same topic on a general level. One of the two mentioned that she walked for health reasons, and the other one said that it was important with exercise to maintain fitness.

Psychological wellbeing

Psychological wellbeing in specific was not a common theme in the participants' discourses; however, one interviewee said that the mind gets cleared when you walk and that you are affected positively by walking outside. Another interviewee made an interesting comment about how moving about on foot was undemanding; you could just get out without any special preparations. She said that it was nice to just get out, helped through the force of habit of walking every day, and added that it was nice to not think and just walk.

Walk regularly

To walk regularly was something that was mentioned spontaneously in four (almost 25 per cent) of the interviews. The interviewees could say this in positive form; one person said that she felt better by walking regularly, another said that it is very nice to get out and walk each day. The same message could also be put in the neutral form: that it is important to walk every day, as one participant said, or in the negative form as another interviewee said: that it does not feel good if one does not walk every day.

Nice to walk

In almost 30 per cent (5 of 17) of the interviews, it was mentioned that it was nice to walk or that the participant liked to walk. In four of these five interviews, it was said that it was nice to walk or to get out and in one interview the interviewee said that she liked to walk.

Exercise

In almost half (8 of 17) of the interviews, exercise for physical fitness was a theme. Walking was seen as an apt tool to get exercise whether by foot or by wheelchair by one interviewee. A typical expression was: "I walk to get exercise", used in similar wordings in four interviews. In a slightly different phrasing, another interviewee said that walking is exercise for free and yet another that she liked to get exercise. In two interviews it was said that walking provides another type of physical exercise (compared to going by bicycle).

As was detailed in in the subsection named *Walking in Varberg* (on page 86), walking is the most common form of exercise in Sweden. More than 40 per cent of the population in ages between 6 and 80 years walk as exercise (Riksidrottsförbundet, 2019; SCB, 2019).

Calmness

Calmness was associated with walking in over 40 per cent (7 of 17) of the interviews. The association was made in three manners. Firstly, walking could be a way to relax and become calm. Secondly, parks and natural environments were described as relaxing places. Thirdly, walking was seen as undemanding in one interview. To walk to get calm and relax was talked about in over 20 per cent (5 of 17) of the interviews. In one interview, walking was described as a way both for getting pulse and quietness. In three other interviews, moving about by foot was talked about as being restful, giving peace and quiet or to disconnect from everything and thereby become calmer. As has been described in the *Wellbeing* subsection, one participant said that walking clears the mind. Finally, one interviewee found it assuasive to walk in the calmer environment outside of the town core. Parks and forests were given as spontaneous examples of relaxing places in three of 17 interviews. One interviewee appreciated relaxing in the park, especially when it was free from bicycle traffic. In the other two interviews, participants indicated that walking in the forest gives calmness. More specifically, it was said in one of those two interviews that walking was de-stressing and that it was nice to hear birds.

Synthesis of Health and wellbeing

The first topic of his category was wellbeing. In total, almost half (8 of 17) of the interviews covered walking in relation to feeling well, health and/or wellbeing. This indicates that wellbeing seems to be an important reason for walking; both for getting out an individual day and for continuing to walk regularly.

The second topic was physical exercise. It is clear, both from the interviews and from the referenced survey, that walking is an important exercise/fitness form in a Swedish context. In almost 50 per cent (8 of 17) of the interviews, exercise was mentioned in connection with walking, and over 40 per cent of Swedes in the age span between 6 and 80 years walk for exercise. The interviews did however not provide any clues to how walking environments should be designed to encourage more walking for exercise.

Finally, the third topic of the participants was calmness. Calmness was associated with walking in over 40 per cent (7 of 17) of the interviews. Walking for calmness and peace of mind seems to be connected to a specific type of walking environment. Put in other words, the participants seemed to choose an appropriate type of walking environment when wanting to achieve calmness. Parks and natural areas seem to be the places sought to de-stress; this connection was mentioned in three interviews. The ability to reach calmness in this manner is therefore affiliated with the availability of calm places, particularly natural areas and parks.

To conclude, wellbeing and walking is multiply connected and can be enhanced by walking via dual pathways: physical exercise and psychological relaxation.

5.10 Accomplish task

To accomplish a task is here understood as an objective for a walking bout. First, the topic is defined in *Formation of the category* (below), where also the responses to the introductory questions are presented. The findings from the interviews are then detailed, partitioned by the two main types of objectives to be accomplished, related to *walking as activity in itself* (page 255) or the *destination* (p. 256). As part of these findings, cross-references are made to topics already detailed earlier in this thesis to avoid repetition, consequently, this section is relatively succinct. The section is concluded with a synthesis of the main findings (on page 259).

Formation of the category

Definition of topic

To accomplish a task is connected to have an objective to complete. The two main types of objectives were found to be related to the *walk in itself* or the *destination* of the walking bout. The text that follows is therefore structured according to these two main types. It should be noted that the term 'task' is used with a wide interpretation: including both more hands-on tasks such as buying groceries and more abstract tasks such as to get calmness.

In real-life situations, it should be noted that several objectives can be intertwined, and they can be connected differently. For example, in an example put forward by one of the interviewees, to walk to a grocery store can have dual objectives: buying food (an objective of the destination), as well as physical exercise (an objective of the walk in itself). There can also be alternative destinations of the same type (for example different grocery stores) to choose from. In some cases, several destinations and activities could be involved to form activity chains or series. Another possibility is that the walking bout can be part of an integrated activity encompassing both the walking bout in itself as well as the destination. Nevertheless,

these types of complex tasks and objectives have not been the focus of the participants in the interviews, and it remains to further research to explore them.

This category overlaps with several of the other categories that have already been presented. To present a complete structure of this category and at the same time avoid repetition all topics already covered elsewhere have been cross-referenced and summarised in the text that follows.

Introductory answers related to the category 'Accomplish task'

All interviewees answered open-ended questions and responses to question 2, 3, 4 and 6 were suitable for categorisation in categories and sub-areas. In Table 15 (on the next page), responses categorised into the current category of **Accomplish task** are detailed into five subcategories.

In total 12 responses to the question *Which are the most common reasons that you walk here?* could be placed in the category 'Accomplish task'. Seven responses were associated with the code ***Errands and shopping***. Two persons said that to make purchases was a common reason for walking; three other participants said that they walked to buy groceries. Another participant said that he took the bicycle or car to town and then walked both for making errands and to enjoy the walk. Similar behaviour was detailed by yet another participant; she parked her car and walked around between the stores in the centre while also enjoying its hustle and bustle. Two of the 12 responses were associated with the code ***Go to work***; one participant went to work on foot and another one by using mobility aids. The code ***Walk the dog*** contained two responses to the same question, i.e. *Which are the most common reasons you walk here?*; two participants answered dog-walking as a reason for walking. The last response to the same question was labelled with the code ***Go to gym***; the participant said that one of the reasons she moved about with mobility aids was to get to her gym.

The final response was to the question *What in the outdoor environment makes you walk more?*, which was matched with the code ***Being able to shop***. In the interview, it was described how the variety of stores in the centre was a reason for wanting to walk there.

Table 15. Distribution of answers to introductory questions belonging to the Accomplish task category.
Source: Author.

Introductory questions	**Answers within category Accomplish task**						**Grand total** for all categories
	Being able to shop	Errands and shopping	Go to work	Walk the dog	Go to gym	**Total** (% of grand total)	
2. Which are the most common reasons that you walk here?		7	2	2	1	**12** (29 %)	**41**
3. What do you think is positive with your vicinity area in regards to walking?						**0** (0 %)	**30**
4. What do you think is negative with your vicinity area in regards to walking?						**0** (0 %)	**19**
6. What in the outdoor environment makes you walk more?	1					**1** (4 %)	**28**
Total	1	7	2	2	1	**13** (11 %)	**118**

The codes ***Go to work***, ***Walk the dog***, ***Go to gym*** and ***Go via public transport*** have been used in keyword search in Table 16 (next page). However, ***Errands and shopping*** and ***Being able to shop*** have not been studied here, as the keywords 'shop' and 'store' already have been investigated in *5.4 Urban accessibility* (p. 162). The text is structured in two different subsections: *Walking in itself as an objective* and *The activity at the destination as objective*.

Table 16. Number of keywords per interview uttered within a context of the category 'Accomplish task'.
Observation: The two subcategories 'Being able to shop' and 'Errands and shopping' have already been covered in the category 'Urban accessibility' with keywords 'shop' and 'store'.
Source: Author.

Subcategory	Keyword	Total # of interviews with keyword in relevant context	# of keywords in relevant context, separated by interview *(interview number)*																	Total # of keywords in relevant context	Original keyword in Swedish
			(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*	*(8)*	*(9)*	*(10)*	*(11)*	*(12)*	*(13)*	*(14)*	*(15)*	*(16)*	*(17)*		
Go to work	**job**	**8**		5		1			5		3				1	3	1	1		**20**	jobb*
Walk the dog	**dog**	7	1	1	7	1					14							2	1	**27**	hund*
Go to gym	**gym**	7	1	3	2								2	2			1		1	**12**	gym
Go via public transport	**station**	**5**				1				2			2				1	1		**7**	station
	train	**6**	1			2				1		1					1	1		**7**	tåg
Total		15	3	9	9	5			5	3	17	1	4	2	1	3	4	5	2	73	

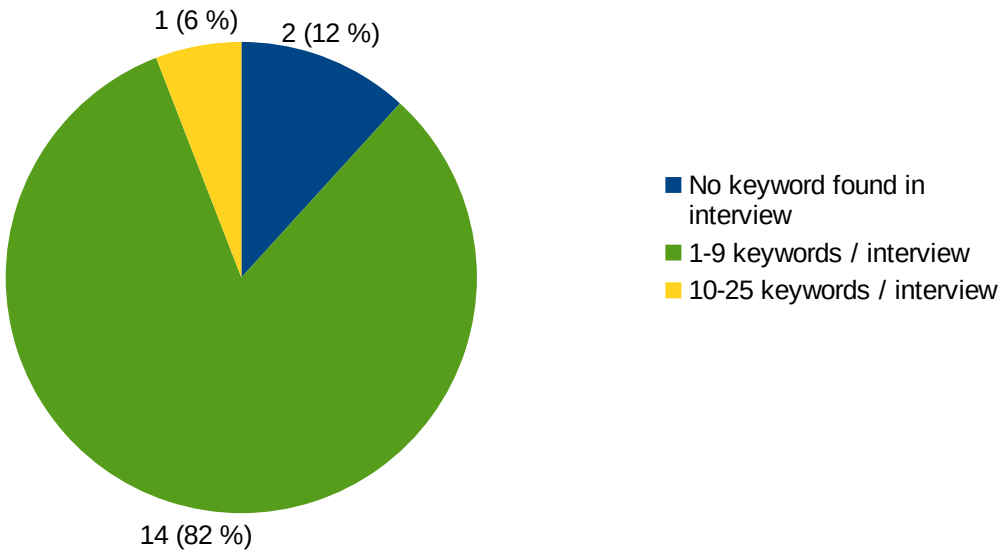

Figure 107. Frequency of keywords used in a context of 'Accomplish task' found per interview.
Source: Author.

Keywords in interview

In Table 16 (on the preceding page) the interview keyword search related to each subcategory was specified. In Figure 107 (above) their frequencies are indicated in a pie chart diagram, which shows that the keywords of the current category **Accomplish task** were talked about in 15 of 17 interviews, but in almost all of them (14 interviews) less than 10 keywords per interview were uttered within this category of **Accomplish task**.

Walking in itself as an objective

Sometimes, walking as an activity merits as an objective in its own. In the research literature, this mode is sometimes called *walking for leisure*. The participants talked about walking for socialising, to be in calmness alone, to enjoy nature and to walk the dog in this context.

Walking as a social activity

The reason for taking a walk can be social, e.g. to walk and talk with someone or to meet people in town while walking. This topic has already been detailed in the category of **Social aspects**. The most important finding from that category in this context was that people associated social walking with urban environments (rather than natural environments). For example, participants talked about going into the town centre to meet and greet when there was a lot of activity and people around. One such situation mentioned was town square market days during the summer part of the year.

Walking to achieve calmness

This topic has been addressed earlier in section *5.8 Social aspects* (p. 229), in which the main finding was that participants associated the need for being calm with the choice of wandering in nature or green settings, such as in parks, along the ocean or in forests. Especially 'empty' natural settings without other people were desirable.

Walking to enjoy nature and get fresh air

This topic has already been written about in section *5.3 Green aspects* (p. 143). The main findings were that having nature in the form of sea, forests and parks near is a key advantage. Walking paths should be fine-meshed to have variation from day to day, and different natural areas (i.e. the ocean and forests) should be well-connected with each-other and with the urban area. The parks most well-liked were very well-maintained and had a rich flora of flowers and trees and ample seating.

To walk the dog

In over 40 per cent (7 of 17) of the interviews, the participants discussed walking with dogs. The most common comment was that they walked more frequently and longer distances when having dogs; in five interviews this type of comment was made. They said things such as that walking the dog is a common reason to get out, or that they walked this way both frequently (up to three times per day) and extendedly (at least an hour each walking bout). In two interviews walking the dog was explicitly associated with green areas. In the first of them, the participant said that when she had a dog she took it to smaller green areas. In the second of these two interviews, it was commented how they walked with the dogs up and down in a larger green area (a forest) and that it was lovely that they dogs could run about and sniff around.

The activity at the destination as objective

Where and when the destination is the objective or target of the walking bout, the term in the research literature is *walking for transport*. In the interviews of this study, the participants mostly talked about walking for purposes of shopping, especially grocery shopping. Other topics that also occurred were walking for going to work, to take a train or to go to exercise.

Go to work

None of the interviewees attended school or university; either they worked or they were pensioners. One retiree commented that it used to be a habit to walk between home and workplace during the years of working. Four participants made it clear that they walked or moved with aids to work. One of them said that he had worked near home, and another participant said that she walked to and from work and preferred to take a detour during the morning to get a longer walk. Two interviewees talked about walking in the context of work. One of them habitually walked in the forest during lunchtime, and the other participant said that walking is good to clear thoughts and get renewed force to work. Another interviewee said that she walked the days when she did not work, which was four to six days per week.

Not working those days thus offered her more time to be able to walk. Similarly, yet another participant said that he currently walks more as he does not work as much as before and therefore has more time.

Shop groceries and other goods

Please see section *5.4 Urban accessibility* (p. 162) for the topic of shopping for groceries and other goods; here the summarised key findings from there will be presented. Having both grocery and other types of stores at a short distance was a key advantage. That was demonstrated through that over 40 per cent of the participants spontaneously mentioned the quality of having a range of shops and services in the Varberg town core. This range is accomplished by a fine-grained mesh of mostly small shops in the town centre. Almost half of the interviews said spontaneously that they walked to make their errands, such as grocery shopping. It was appreciated to have a grocery store on walking distance.

Take a train or a bus

One participant said that she had stopped using a car when living in Varberg, she did not need to use a car as you can both walk and go by bicycle and there are buses and trains available. Four participants remarked that the positioning of the combined railway and bus station in the town centre of Varberg was favourable. For example, one participant said that you could take a walk in town when you had some extra time before taking the train to Gothenburg (a bigger city 40 minutes by train from Varberg). He compared the central placement of the railway station in Varberg to the less favourable situation of the neighbouring town Falkenberg, where the railway station is situated on a field far away from the town centre. Two of these four participants said that the placement of the railway station is perfect, as it is within close walking reach.

One participant liked to walk to the railway station via the two adjacent parks ‘Engelska parken’ and ‘Järnvägsparken’; she said that it was very nice there. Another interviewee said that she liked to walk down ‘Eskilsgatan’ – an avenue with birches on each side, cut in a characteristic inverted cone-like shape – when walking to the railway station.

Go to exercise at the gym

In six of the interviews, the participants talked about going to the gym and group exercise classes in connection to walking. However, their comments were mostly in passing, mentioning that they exercised but not in the context of how they experienced walking to the gym. In two interviews, participants mentioned that they walked to the gym regularly and in three interviews interviewees said that they go to group exercise. Outdoor gyms have become a rather new part of walking environments, with exercise equipment you can use spontaneously during your walk. Two persons mentioned outdoor gyms, and one of those persons said that she found outdoor gyms to be nice, and would like to have more of them. Two interviewees mentioned the advantages of walking instead of doing exercise in a gym or group classes. The first of them commented that it was an advantage that you could walk whenever you want, compared to group exercise classes where you have to fit a certain date and time. The other interviewee said that she preferred to walk in nature instead of on a treadmill indoors and that it was important to get out in nature for feeling well.

Synthesis of Accomplish task

Walking can be performed because of purposes connected to the walking bout in itself, in a 'mixed-mode' where both the walking bout in itself and the destination matters (in varying proportions) and finally in a mode where primarily the destination matters.

When it is the walking bout in itself that matters, several purposes were connected. One of these purposes was social in character; participants associated social walking with the urban, built environment. Another purpose was to walk to enjoy nature and get fresh air; having nature in the form of sea, forests and parks near home was a key advantage according to the participants. One participant walked in the forest at lunch-time and commented that it was a good way to clear the mind. Yet another purpose was to walk the dog, which was discussed in over 40 per cent (7 of 17) of the interviews. In five of these interviews, participants said that they walked more frequently and for longer distances when having dogs with them.

For walking where the destination was (partly or fully) the purpose of walking, going to work was one mode; four participants said that they moved by foot or with mobility aids to work. Another purpose was to shop for groceries and other items. It was appreciated to have a grocery store and other stores on walking distance from home according to the participants; in over 40 per cent of the interviews, it was spontaneously mentioned as a quality to have a range of shops and services nearby in the Varberg town core and in almost half of the interviews participants said that they walked to buy groceries among other goods. Walking can also be part of a trip chain with other modes. For railway journeys, participants valued the centrality of the Varberg railway station, and its connectedness with the surrounding built environment via scenic park and street routes.

To sum up, participants talked about to accomplish needs in relation to walking for socialising, be alone in calmness, enjoy nature, walk the dog, shopping, go to work, take a train or exercise. The proximity of environments to be able to perform these objectives was a common denominator; participants appreciated having walkscapes and destinations nearby that enabled them the possibility to walk to achieve a wide gamut of objectives.

6. Discussion, practical applications and conclusion

This chapter interprets the findings and provides practical recommendations and conclusions based on them.

First, in *Findings vis-à-vis research questions* (next page), the purpose of the study is summarised, after which the research questions are reintroduced, to which the key findings are outlined as responses. Selected findings are analysed and related to referenced works in the main discussion section *Interpretations in light of prior studies* (p. 265), organised in eight themes: a) variation and change, b) proximity and availability, c) information, d) universal access, e) place attachment, f) safety and finally g) sitting and lingering options. These interpretations form the basis for the third section named *Practical applications* (p. 282), which includes recommendations and ideas for how to improve walking environments through architecture as well as urban design and planning. As this chapter draws to an end the *Research implications* (p. 295) are stated, including this study's contributions to knowledge and limitations as well as recommendations for further research. Finally, the *Conclusion* (p. 299) brings this thesis to a close.

6.1 Findings vis-à-vis research questions

On this and the two following pages, key findings are contrasted with the research questions.

Purpose and research questions

Purpose

The purpose of this qualitative, walk-along study was to explore how environmental aspects in relation to the practice of walking are experienced and evaluated by participants, and how these aspects encourage or discourage walking.

Central research question

The central research question was defined as:

> **How do inhabitants experience environmental and urban aspects in the walkscapes of their neighbourhood in Varberg, Sweden, and how do these experiences affect their walking choices?**

Research sub-questions

The research sub-questions were defined as:

1. **How do the inhabitants experience walking in their neighbourhood?**
2. **How do these experiences influence their walking choices?**
3. **How can urban and green areas be designed to encourage walking?**

Research sub-questions 1 and 2 will mainly be the focus of the brief section *Key findings contrasted to research questions* that starts on the next page, while the remainder of this chapter mainly will respond to research sub-question 3.

Key findings contrasted to research questions

A qualitative approach was chosen for this study, focusing on human experiences. Therefore, results cannot be extrapolated to the whole population. However, the qualitative approach made it possible to explore understandings and experiences without being bound to fixed measurements. The interviews showed a multi-faceted view of what influenced the participants' walking behaviour, in different categories and scale levels. Many interviewees were female and/or middle-aged, hence highlighting these groups in the findings.

The pre-study showed that walkers and cyclists were lumped together conceptually and in the main study this unfortunate hodgepodge of two distinct transport modes was illustrated in practice; walking and cyclists sections of the pavement without any substantial separation and participants that were bothered by cyclists who intruded on the pedestrian pavement sections. The pre-study also showed that walking was seen unidimensionally in planning, while the main study showed that in practice walking is multi-faceted, with aspects such as mode, aim, social context and route choice.

One key finding was the need for variation, in choice of walking routes as well as in the environment. Another key finding was the preference for convenient walking, expressed through appreciation of having destinations and suitable walkscapes nearby, and through criticism towards shortcomings in universal accessibility and pedestrian information.

1. How inhabitants perceived walking in their neighbourhood

Participants enjoyed walking along the ocean and in forests. They liked to observe variation and seasonal changes; they associated walking in a natural setting with tranquillity. For urban walking, participants perceived parks, trees and greenery in private gardens positively. The proximity to both natural and commercial destinations was an appreciated quality of Varberg in regards to walking, however, information such as maps and signage could be improved; especially lacking was information regarding accessibility for disabled. Regarding place attachment, participants wanted to experience a historical continuity; to have a coherent built environment with preserved old buildings. If new buildings had to be constructed in the town centre they should keep to the existing scale and height. A majority of the

interviewees felt unsafe in some way while walking, and related this perceived unsafety to crime and traffic. Participants walked to be alone and to be social. Walking for being alone was associated with wandering in natural or park settings while walking for social purposes was predominantly associated with an urban environment. Health and wellbeing was connected to walking via exercise and via calmness.

2. How the inhabitants' perceptions of the environment influenced their walking choices

Having nature nearby was connected to walk regularly in nature. Participants wanted to combine walks in forests and along the ocean. They also liked to have a variety of shops and services near, including a grocery store. Public space was not sufficiently adapted for physically disabled participants, limiting their movement possibilities. Lack of dropped kerbs, unevenness and unsuitable pavement materials such as big stones were limiting. Also, information was lacking on which streets were adapted for universal access. Participants appreciated seeing old, richly decorated buildings while walking and they also actively chose to walk on streets with historic buildings. Coherence in the built environment, particularly in height, was appreciated; one participant connected coherence with continuity and cosy environments that were enjoyable to walk in and therefore chose to walk in the town centre. Interviewees wanted to walk along paths with good lighting from above and trimmed bushes to feel safe. They preferred to walk on streets with ample space reserved for walking. Cyclists should be separated so that they stop encroaching on pedestrian space. Car traffic was seen as negative for safety, due to high speed, heavy traffic and barrier effects. For walking alone, natural settings without people were sought after, while walking for social purposes was associated with urban settings, where new social contacts could be made. Health and wellbeing seemed to be an important motivation to walk regularly and habitually. For achieving calmness, participants sought to walk in green environments, as they were deemed suitable to lower stress levels. Participants talked about walking for socialising, to be alone in calmness, to enjoy nature, (go to) exercise, walk the dog, go shopping, go to work or take a train. The interviewees appreciated having suitable walkscapes and destinations for achieving many objectives within walking distance; proximity was a key factor for deciding to walk to a destination or for choosing environments for leisure walks.

6.2 Interpretations in light of prior studies

This section entails interpretations of prominent themes that often transcend the particular categories constructed in the prior *Findings* chapter. Findings are presented in simple past tense, e.g. "participants appreciated...", while comparisons with previous research are made in present perfect tense, e.g. "Silva (1999) has noted…", and finally my interpretations are stated in present tense, e.g. "To be able to linger seems to be integral for walking…".

Increase stimulation through variation and change

In this theme, the importance of having a variety when walking is discussed based primarily on the category Green aspects and, to a lesser extent, on the category Urban accessibility. It should be noted that research on variation in combination with green areas in or near the built environment area seems to be scarce, and therefore the search for previous research had to be expanded also to references regarding natural landscape outside of towns and cities.

Having choices for route and type of area important for variation in walking

Variation along the walking route seemed to be important to participants. Different scales need to be considered in this sense. Firstly, on a zoomed-in scale, many path options within a natural area (such as a forest) are needed. Secondly, on a district scale, there should be a mix of different kinds of nature that can be combined with a continuation of the walking bout in an urban setting. To have a natural area nearby that offers choices of many different walking paths was appreciated by the participants, as this enabled them to vary the choice of walking routes to avoid tediousness.

In a US study by Duvall and De Young (2013) the participants have mapped content conceptually on the topic of strategies to sustain the routine of walking, in which they specified 'vary route' as a component. A Chinese study by Zhai et al. (2018) has shown that trails with high integration, i.e. good accessibility to other trails, were used more. Not only for people feeling stimulated but also for health reasons, it is advantageous to provide for

walking opportunities that encourage people to continue to walk each day. To provide a rich selection of many attractive paths to choose from, that are well-connected to each other and also to the surrounding urban environment, appears to make it more pleasant for people to walk, as walks can be varied from one day to the other.

The interviewees appreciated the diversity of green areas in Varberg as they provided different nature experiences, from parks in the urban areas to the sea as well as forests on a short walking distance. To have several green environments available to choose from depending on climate circumstances was valuable for the participants, as it made it easier to adapt and go on walking even during windy and cloudy days. More specifically, participants explicitly mentioned that they appreciated having a choice between walking in the forest and near the sea.

It has been shown that 'urban blue spaces' (for example the sea or lakes) can offer specific qualities for wellbeing in addition to those of green spaces, as these blue spaces afford environments especially suitable for contemplation, according to a German study by Völker et al. (2018). To have several distinct types of natural areas, especially including both green and blue spaces, brings variation and richer possibilities of choice for walking, probably making it more attractive to walk.

Changes and shifts in nature by season and through variation in colours

The interviewees liked to experience variation and seasonal changes, for example through the colours of trees and flowers changing by seasons as well as shifts due to weather and wind, such as visual changes in the ocean, due to waves and light conditions. To see animals moving about was also mentioned as positive.

Earlier research also shows the preference for observing transitions in nature throughout the year. To watch changes along the route and to observe seasons and scenery were some of the techniques recommended by regular walkers in a US study to maintain the habit of walking (Duvall & De Young, 2013). The wish for seeing change and gradual development in nature is connected to the experience on a micro-scale and is tied to multiple senses. In a study on the Flower Garden in Hangzhou city, China the researchers have recommended to address multiple senses – not only visual elements but also auditory,

olfactory and tactile sensations – and also to plan gardens with different plants that exhibit distinct aesthetic qualities in various seasons (Chen et al., 2009). Seasonal changes appear to be important for stimulation and colour seems to be a key factor here according to other studies. Davies (2016) has written that "In natural landscapes, colour is part of the attractive force which influences route and location choice" (p. 70). In agricultural settings in Switzerland, participants did like the flowering landscape stages the most, in which seasonal stages with high-intensity colours, especially yellow, were the most preferred (Junge et al., 2015). Similarly in a Belgian study, participants have evaluated greenery as more beautiful in spring and summer, as trees and flowers display leaves and flowers in those seasons, and they also appreciated to observe animals such as birds and squirrels (Van Cauwenberg et al., 2012). In a US study, participants did seem to prefer landscape scenery with many colours and hues the most, and also evergreen trees over deciduous trees in winter (Kuper, 2015). The researcher of the study has recommended considering colour during the whole life cycle of plants and vegetation when designing and planning environments, and also to select both plants that emerge early in spring as well as plants that enter winter dormancy late to prolong the landscape attractiveness (Kuper, 2015). A Portuguese tourism research study has stressed the importance of a balanced experience using several senses when experiencing landscapes, where natural light and diversity of colours are predominant visual aspects; birdsong, wind and the sound of the sea are striking audition aspects; heat and coolness are pertinent for the haptic sense and smell, salt and sea dominate for the olfactory sense (Agapito et al., 2014).

Shifts and changes that can be observed in greenery and nature can probably make it more stimulating to take a walk each day, as you have the chance to explore something new even though you may wander along the same path. The presence of colours in the surroundings seems to be a key aspect to achieve dynamics from day to day while walking. In green settings these colours primarily stem from flowers, plants and trees, while in an ocean setting variation is provided in colour through waves and weather, making each new day's walk different from the last. Another key aspect may be variation along seasons; to extend variation (especially colour-wise) as long as possible into autumn, winter and early spring.

A mix of urban greenery important, including private gardens

Participants commented spontaneously about how they liked greenery in the town, either by using a general word for greenery or by talking about specific categories such as trees, flower-beds, flowers and other plants. They also commented about how they enjoyed observing front gardens they passed by while walking.

A Dutch study on walking route choice has indicated that the elderly participants were more likely to walk along streets with front gardens (Borst et al., 2009). In a Belgian walk-along interview study that has been conducted by Van Cauwenberg et al. (2012) participants liked to have greenery, which they associated with peacefulness and healthiness, along their walking routes; especially trees but also front gardens of private houses were appreciated. In a Japanese study, trees were the factor with the overall greatest influence on preference, while flowers were the most favoured within smaller greenery, particularly low and orderly compositions of flowers in bright colours (Todorova et al., 2004).

Interpreting the answers of the participants on urban greenery in light of earlier research, it seems like a mix of different kinds of greenery is important. Trees are an important element, but smaller green elements such as flower plantations also contribute to the feeling of urban greenness. The interface between private gardens and walkers in public space is a relatively unexplored research area. It seems as private gardens, with their trees and flower-beds, can affect pedestrians who pass by positively.

Cater to different walking needs via proximity and availability

Here, the findings regarding the importance of having many walking destinations and environments close by are interpreted, based on participants discourses within the categories of **Urban accessibility**, **Green aspects**, **Accomplish task** and **Health and wellbeing**.

Proximity to destinations and walkscapes a central aspect

In general, the interviewees transmitted a positive view on proximity and availability in/of Varberg. The compact inner town with everything nearby in a fine-grained street mesh, ample space for pedestrians and an integrated street-pattern seem to contribute to their positive evaluations. Short walking distance was a key talking point that reoccurred again and again in the participants' comments. The interviewees pointed out how they liked having the destination they wanted to go to readily available by foot.

In research on walking behaviour, proximity and connectivity have been detailed as key aspects (Owen et al., 2007). From a diversity of uses viewpoint, walkable neighbourhoods have been linked with land use patterns that are fine-grained and varied (Southworth, 2005).

A fine-grained mesh of destinations or attractions to walk to therefore seem to be objectives to strive for in urban planning. The walking possibilities offered should be manifold, with destinations such as shops, services and public transport stops as well as environments for walking as an activity in itself, such as streets that are inviting for strolling in urban areas as well as attractive natural areas for wandering.

A fine-grained concentration of small stores benefits accessibility

The participants appreciated Varberg in regards to its shopping possibilities and diversity of stores. The connection between diversity of uses and walkability has been well proven; diversity of uses (i.e. land use mix) has been developed as a standard component of walkability indices (Frank et al., 2010; Maghelal & Capp, 2011). In a study by Mehta (2007) variety of uses was ranked as the most important aspect for preferring to walk in one block rather than another.

Analysing the urban planning of Varberg in regards to store configuration and distribution from a walkability point of view, there are advantageous aspects to highlight. Firstly, there is a wide range of small stores. Secondly, there are many stores concentrated within a walkable circumference, while at the same time they are quite evenly distributed within the area of the town core. Thirdly, there is a quite clear understanding of the definition and limits of the town centre. Last but not least important, having a grocery store with a good assortment right in the urban nucleus is a key part of an attractive mix.

Green surroundings should be well-linked to be attractive for walking

Green and natural surroundings were especially sought after by the participants for walking in calmness as well as for walking for physical exercise, and they appreciated having both forests and the ocean nearby. In Varberg, both the ocean and forests are linked with paths and streets to the town centre and can be reached within a short walking distance.

It seems advisable to plan urban settlements so that natural areas are both near and well-linked. A study from Sweden's neighbour country Finland has concluded that green, outdoor recreation areas should be located near residential areas and provide access year-round (Neuvonen et al., 2007). Greenspaces should preferably be integrated not only with the built environment (such as the town centre), but also be well-linked in between themselves. The interlinkage of green spaces can be seen as 'green network', referring to their configuration in/as a functional system (Moseley et al., 2013). Giles-Corti et al. (2005) have discussed how links can be created between several smaller green areas through the use of signage and paths that are landscaped with trees and shrubs to make the parks more perceptible from the surroundings.

Linking several natural areas (preferably of different characters) together with the town centre and populous neighbourhoods makes it possible to combine urban and natural walks in different ways, providing for choice and variation. Accessibility to these green areas can also be improved by other means, such as clear signage and maps.

Ease the cognitive load through better information

This theme addresses information aids (e.g. maps and signage) with on-site information being the main focus. This theme is based on the findings from primarily the **Urban accessibility** category, and to some extent also from **Accomplish task** and **Green aspects**.

Pedestrian wayfinding information provides orientation

Interviewees found information, specifically clear signage and maps, important. Street signage was evaluated as somewhat lacking in the town centre, while the 'Path for health' in the Håsten district in Varberg was evaluated positively with its concept of clear signage and maps along the walking route.

Few studies on walking and the wayfinding environment have been found in a meta-review study by Vandenberg et al. (2016), that however could be categorise wayfinding as an integrated, cognitively demanding aspect of walking; especially in places that are unfamiliar or where no on-site information is present. 'Legible London' was detailed as the most prominent practical example of improved wayfinding through information in the same study.

The wayfinding scheme of 'Legible London' has information boards (see one type in Figure 108 on the next page), wall signs and fingerposts of different sizes, and is based on the principles of a) 'heads-up' maps (oriented towards the direction you stand instead of towards north), b) progressive disclosure (just enough information at each place), c) visibility (amongst others through a yellow stripe at the top of the map) and d) legibility (through high colour contrast and bold typefaces) (Spinney et al., 2017). Herbes (2011) has recommended that pedestrian wayfinding is constructed as one unified and integral system that connects areas, regions and transport modes to answer the questions of "Where am I?", "How do I get where I want to go?", "How far is it?" (in walking minutes) and "What else is in the area?" , (p. 8-12). The 'heads-up' maps oriented from the user's viewpoint as well as the distance measured in walking minutes all form user-friendly ways of making it easier to use navigational aids. To see the distance measured in walking minutes was something one one of my participants preferred in the context of maps and signage along paths in nature.

Figure 108. 'Legible London' wayfinding map.
Photo: Momentum (Creative Commons BY-NC-ND 2.0)

One interpretation of the comment of that participant is that wayfinding is not only about walking for transport in inner towns, but also about knowing your whereabouts in natural areas. Research has resulted in a similar conclusion; to increase wandering on nature trails information needs to be improved about their approximate walking time, difficulty and available services (Márquez-Pérez et al., 2017).

Altogether, the interpretation of the findings and earlier research strongly indicates the advantages of implementing an integral pedestrian wayfinding system that covers a whole town. This information needs to be designed so that the walker can find out where to walk, and where on the path s/he is right now. The 'Path of health' (see p. 175) provides an inspiring example here, with unified planning of coherent information catered for walkers within one natural area. To unleash the full potential, however, the pedestrian wayfinding needs to be unified on a larger scale, preferably in the whole town, or at the very minimum the town centre and adjacent neighbourhoods. Right now the information system for pedestrians is very lacking in many towns and cities. There is a stark contrast to how well the information is laid out for a motorist speeding along the motorway: coherent information with repeat advance indications for destinations in good time before junctions and also regularly repeated information about the distance to common destinations. It seems as it is due time also for pedestrians to be able to get systematised guidance in navigation. A pedestrian wayfinding system is something that would be beneficial for inhabitants and tourists alike. To implement such a system in a municipality could be done combining the experience gathered from established systems; 'Legible London' with heads-up maps, high visibility, progressive disclosure and a unified design provides a strong identity to facilitate successful navigation on foot for transport walking in an urban context, while the 'Path for health' with clear signage and maps for leisure walking is a model for wayfinding in nature.

Information for universal access is needed

Participants expressed that information and signage in regards to universal access (i.e. access for everyone, regardless of disability, to public space) was severely lacking, as they could not find any information on which streets that had been adapted for wheelchair use. No physical signage existed, neither any Internet or printed information from the municipality.

Participants also expressed how this type of information – for example regarding if a ramp was available to a shop, or if kerbs were dropped on a pavement – was fundamental to know if they were able to access a place or not.

Research on physical information (such as maps and signage) for universal access seems to be very scarce. However one interesting conference paper was found, that points out inclusive design elements of the pioneer wayfinding system 'Bristol Legible city': a) safe spots to cross the streets which have dropped kerbs, b) map colours adapted for different kinds of colour-blindness and c) route information included on the location of prominent buildings, public toilets and public transport stops (Colette & Fendley, 2011). In the same paper, concepts were put forward on how to make maps more accessible, for example through offering: a) large-print maps, b) personalised digital mapping, c) indication of steep routes, d) audio information and finally e) smartphone mapping apps (Colette & Fendley, 2011). On the topic of mapping apps for mobile phones, and in broader terms on digital accessibility information, there exists a larger amount of research. Several studies suggest crowdsourcing accessibility information through digital mapping smartphone apps, where up-to-date information about the accessibility of pavements, public toilets as well as to shops and services can be shared among users (Mobasheri et al., 2017; Saha et al., 2019; Zeng et al., 2017).

An interpretation to be made, based primarily on the participants' evaluations but also on earlier research, is that information regarding universal access needs to be available on-site, as well as in digital and printed forms. Digital information is especially important to have available through smartphones to be accessible whilst walking, but computer access should also be possible so that maps can be printed before walking; preferably there should be a possibility to customise the map towards your own needs before printing. In general, the information should be easy to grasp with high visibility and contrast. Relevant accessibility information should be shown, such as which pavements are accessible, where dropped kerbs are situated and which buildings are possible for everyone to enter. Finally, systems and processes need to be put into place so that the wayfinding information is maintained up-to-date; probably it can be advantageous to combine central updates with user-generated (crowd-sourced) content to achieve this objective.

Enable universal access to the urban environment

This theme draws on the **Physical feasibility** and **Health and wellbeing** categories and was chosen because of its central importance in enabling freedom of movement for people with physical disabilities as articulated by participants.

The interviewees characterised several limitations in the built environment; among others uneven pavement surfaces, high kerbs, blocking objects on the pavement and absence of ramps to enter shops. These barriers limited the freedom of movement in a severe way for people with locomotor disabilities, according to the interviewees.

These findings are broadly in line with those of other researchers. Bromley et al. (2007) have made qualitative interviews with wheelchair users which showed that the main ten prohibitive or major obstacles were (in decreasing order of importance): a) lots of people on the pavement, b) getting into shops, c) lack of dropped kerbs, d) high kerbs, e) steps, f) uneven surfaces and g) dropped kerbs not adjacent, h) narrow pavements and i) busy roads. In another study in the United Kingdom crossings without dropped kerbs, pavements with an effective width narrower than one metre and dropped kerbs with a gradient of more than five degrees were appointed as the main three barriers to consider (Mackett et al., 2008).

Participants also expressed difficulties with the 'shared space' solution (without zebra crossings) of the Varberg town centre, which resulted that it was hard to know when and where you can safely cross the street. This finding is consistent with previous research. In an article on accessibility for visually impaired Norgate (2012) has discussed how 'shared space' solutions risk being more difficult to navigate for blind and partially sighted users. Streets that are inclusive to everyone – independent of sight – should have priority for pedestrians with car traffic either excluded or only allowed at low speeds, include reference points such as kerbs and tactile guidance paths, be free from obstacles, provide frequent pedestrian crossings with dropped kerbs and tactile pavements, visual contrast and good lighting and be regularly cleaned and maintained (Guide Dogs for the Blind Association, 2010).

The interpretation to be made is straight-forward: the built environment, with streets and other outdoor areas, as well as buildings of public use should be adapted for universal access, where the most salient points to address have been outlined in this section.

Place attachment through coherence in the built environment

This theme is based on the **Place attachment** findings category and was selected due to its closeness to the architecture field. Participants wanted to maintain coherence in the built environment of the town centre and therefore suggested to preserve old buildings. If new buildings had to be built in the centre these should respect the existing building scale and height, according to the interviewees. Last but not least, they liked to feel a continuity with history through experiencing old buildings, with articulated façades, while walking.

A Belgian walk-along study made by Van Cauwenberg et al. (2012) has similarly shown that participants liked walking on streets with historic buildings. In the walkability model that Ewing and Handy (2009) have developed, one urban design aspect is imageability, connected to the prevalence of historic buildings. It has been stated that historic environments support *place distinctiveness* (being unique), *place continuity* (to link memories to) and *place dependency* (to facilitate daily life) (Graham et al., 2009).

A built environment with maintained historical roots seems to be an aspect of an attractive walking environment. This cultural heritage may be valuable to local citizens, to feel the gradual development of history, and to have a clear connection to former times. In my opinion, this does not mean that history should freeze, but rather that modifications should be made gradually and gentle, so the thread of history is spun further rather than severed. In practice, this may be achieved through working in a similar scale, height and placement within the building lot as well as with a similar relation to the street (particularly in regards to the ground floor). New buildings may be planned in a current style, but still work together and harmonize with existing buildings around them; to find their place in the town weave. Linguistically speaking, the new buildings may work as conjunctions rather than superlatives. In an analogy to theatre, instead of having a sole focus on the design, layout and decoration of a new building as a 'superstar' in isolation in an architecture project, it could be advisable to rather view the new building as part of a whole ensemble and analyse how it works in context and dialogue with those around it. The focus should be on the townscape and its streetscapes as interconnected weaves rather than on buildings as isolated entities, particularly for architectural design in historic environments.

Improve safety through reserved space and visual overview

This theme is based on the **Safety** category, including safety from traffic and crime. More than half of the interviewees said that they had felt unsafe in some way during walks.

Provide a visual overview and good lighting conditions

An aspect that contributed to the participants' perceived unsafety from crime was the proliferation of bushes that had grown large and limited their visual surveillance capacity. Earlier research has also shown that shrubs can impact perceived safety negatively. Vegetation overgrowth was mentioned by more than one-third of the participants in a US study (Gallagher et al., 2010). A study with female participants in Poland, Latvia and China has confirmed recommendations to improve visibility at ground level by trimming shrubs (Lis et al., 2019). It can be concluded that trimming shrubs and bushes along the movement lines of pedestrians would be beneficial for the perceived safety of walkers.

Another safety aspect that the participants articulated was the problem of seeing the surroundings in night-time due to darkness. Street lighting has been categorised as the most important physical aspect linked to perceived safety in outdoor environments (Haans & De Kort, 2012). A survey performed in Granada, Spain has shown that streets that are well-illuminated and provide optimal lighting uniformity tend to improve perceived safety (Peña-García et al., 2015). To provide lighting of high quality and evenness across routes pedestrian move along thus seems to be a key aspect for making people feel safe while walking during evenings and nights (Lester, 2010). The public lighting in the Varberg town centre has been characterised by the municipality as being placed too high, with high-pressure sodium lights that provide a yellow light with poor colour rendering (Varbergs kommun, 2019). In a UK PhD study on lighting design, Ebbensgaard (2017) has recommended that lighting design better adapts to local conditions through resident input and that lighting designers cooperate with urban planners considering the social dimension of lighting. Moreover, Martau (2009) has concluded that the effect of lighting on the human activity should be in focus; lighting is not only about narrow subjects such as energy savings, but rather needs to be perceived as an inherently interdisciplinary area. In a New Zealand report, "useable visibility" (p. 7) has been

put forward, i.e. that the decision of location, size and intensity of light sources should be determined by the activities, behaviours and route patterns of pedestrians (Lester, 2010). To plan public lighting in a multi-disciplinary way with residents, architects and lighting designers may lead to a more enlightened result, literally and figuratively speaking.

Minimise problems pedestrians experience with cyclists

Interviewees felt inconvenienced by cyclists while walking; they said that cyclists often did not respect traffic rules and encroached on pedestrian space. Subjects in a Belgian walk-along interview study likewise have stated that they disliked careless cyclists on the pavement (Van Cauwenberg et al., 2016). A British study has found that pedestrians preferred segregated paths, with some kind of separation towards cyclists (Delaney et al., 2016). This is in line with the findings of this study, where participants suggested to allocate more space to pedestrians and provide a better separation between pedestrians and cyclists. It seems sensible to separate pedestrians from cyclists with clear marking, maybe even a height difference, and allocate more space to pedestrians when possible.

Consider the barrier effect of car traffic on walking

Participants found the barrier effect of car traffic negative. They suggested less car traffic through the inner town and clearly configured zebra crossings to cross the street conveniently. Along similar lines, another walk-along study has found that participants a) preferred streets with little traffic, b) did not like speeding cars and c) proposed speed bumps (Van Cauwenberg et al., 2016). Several seminal sources have stressed that car traffic should be limited. Project for Public Spaces has stated that "a main street is not a highway. One should not fear crossing the street, on foot or in a car." (Madden & Wiley-Schwartz, 2005, p. 26). Gehl (2010) has argued that "slower traffic means lively cities" (p. 71). Taming of car traffic can be one measure towards a more attractive walking environment. In my interpretation, the focus from a walkability point of view should be put on a) lowering car traffic speed (e.g. through speed bumps and narrower streets), b) safe zebra crossings with pedestrian priority, c) redistribution of street priority from car traffic to pedestrians (e.g. through pedestrianised or walking-speed streets) and d) on reduction in volume of car traffic.

Provide lingering options for comfort and social contact

This theme discusses seating and other artefacts in walking environments that afford lingering, i.e. to stay at a place as part of the walking bout, and is based on findings mainly from the **Social aspects** category, but also to a lesser extent from the categories **Physical feasibility** and **Health and wellbeing**.

Seating to facilitate rest and social contact

Many participants connected walking and social aspects, primarily through social interaction that can take place during a pause in the walk. When the interviewees talked about artefacts in the environment for social purposes, social seating was the aspect most talked about, which was described as seating arranged together, making it easy to talk to each other, e.g. a bench and a chair configured around a table.

Seating has been characterised as an important affordance of walking environments. Mehta (2007) has shown through observations that the social use of streetscapes is associated with commercial seating (e.g. outdoor café chairs) and also public seating (e.g. benches), which both afford lingering and socialising. In his seminal study Whyte (1980) carefully observed public places in New York and showed that people prefer seating that is both physically and socially comfortable; physically, benches should have backrests and chairs should be well-contoured, yet social comfort is more important, for which choice of where and how to sit is critical. Choice should be offered to sit in sun or shade, near or far from activity, alone or in a group and in a preferred location or direction; hence chairs should be movable, supplemented with steps and other flat surfaces that can perform a double duty as seating or tables to offer flexibility (Madden & Wiley-Schwartz, 2005; Whyte, 2013).

Walking and lingering (such as sitting and socialising) seem to be mutual aspects of enjoying outdoor places that can strengthen each other in a synergetic manner. To reach such a synergy artefacts need to be designed and placed with flexibility for people to themselves decide how they want to sit, for improving comfort and convenience as well as making social contact more feasible and natural.

Other artefacts that support social activities during walking breaks

In addition to benches, interviewees mentioned other artefacts in a social context. Outdoor gyms were the most commonly cited; they were seen as a way to combine a healthy activity with possible social contact. One participant suggested to concentrate several social artefacts together to increase the social potential, the example given was to situate several outdoor gyms together. Examples of other artefacts they mentioned were grilling areas, where a family or group can sit together and outdoor art with mural paintings on walls.

Outdoor gyms seem to contribute to more intensive use of outdoor environments, and appear to be especially attractive when integrated with seating areas, playgrounds and walking paths, such as in the excellent Brazilian example in Figure 109. An Australian design test of an outdoor gym at a beach location has shown that its co-location with a playground, amenities and a walkway was important for raising its visibility and attracting users and also

Figure 109. Outdoor activity area that combines different activities in Florianópolis, Brazil.
Outdoor gym (right), walkway (along the sea), playground (left) and seats (bottom).
Photo: Andrew Carvalho, 2019. (Used with permission)

benefited safety as more people used the space at the same time (Scott et al., 2014). Outdoor gyms have been associated primarily with positive health outcomes, and have also been seen as places to "find social connectedness while participating in structural physical activity at no cost" (p. 1) by users, according to a meta-review study based on research from Australia, Canada, Brazil, Taiwan, China, USA and Chile (J. L. C. Lee et al., 2018).

In general, if outdoor environments are designed in a way that encourages people to walk and linger, there should be an increased chance of social interaction. It seems like a holistic approach during architectural design of outdoor environments is needed: to design for a 'mingling' of walking and lingering. To plan for the combination of different activities nearby each other can be advisable for increased social use. The combination found adjacent to the beach of Praia Brava, Florianópolis, Brazil (see Figure 109 on the previous page) illustrates ingredients of a good place mix, with its combination of outdoor gym, walkway, playground and seats.

6.3 Practical applications

In this section, twenty practical suggestions for architectural and urban design practice distilled via interpretation of the findings will be presented. These suggested practical applications have been written with professionals and politicians in the architecture and urban planning field as the intended audience, particularly those working for municipalities.

Increase stimulation through variation and change

1. Accentuate changes and shifts throughout seasons in the outdoor environment

In Japan, the whole community walk outside to watch the cherries blossom. Changes in colour, such as through seasonal shifts, seems to be able to stimulate people in the outdoor environment. Parks can be maintained carefully to display beauty through a variety of blossoming flowers and trees. To accentuate the course of the seasons, flowers and other small plants that have dramatic seasonal effects – especially through the change of colour – could be selected for cultivation in parks and flower beds on streets. In the longer-term bigger, decorative plants (e.g. trees) that display a marked seasonal change could also be planted. Plants with distinct colour and appearance in the early spring could be combined with other species that blossom in autumn to prolong stimulation along the seasons.

In the harsh Nordic climate nature's colours are bleak in winter. Conceivably, places for colourful public art with regularly changing motifs could be facilitated to bring a splash of colour in the dark seasons; the outdoor mural wall paintings situated on three blind walls of buildings in the Varberg town centre that one participant commented positively upon is a concrete example.

2. Mix greenery into the urban built environment

To provide fine-scale greenery meshed in the town fabric is something that potentially can improve walking attractiveness. To plant and care for trees perhaps makes for the most markable green urban footprint. However, there are also simpler measures to be taken. To provide for small green plants and flowers can also make streets greener. The greenery (for example flower beds and trees) should preferably be interspersed in town to be experienced repeatedly during a walking bout.

To watch private gardens while walking was enjoyed by the participants, who were stimulated by observing these gardens change throughout the seasons. However, detached housing is normally privately owned, and inhabitants decide if and what to plant in their gardens. Speculatively, the planting of private gardens in the town centre could nonetheless be incentivised, maybe through a most beautiful garden competition? On the other hand, public (i.e. municipal) real estate companies often own multi-tenant, rental buildings in central locations of Swedish towns. It would be possible for these public municipal companies to facilitate the planting of flowerbeds and gardens on the lots of their buildings, possibly in cooperation with tenants interested in the cultivation of flowers and plants.

3. Diversify and multiply walking route choice

A fine-meshed network of walking paths and routes in urban and green areas could offer increased walking route choice, with a potential for making walking bouts more interesting and dynamic. When planning new developments in urban areas one could aim for a fine-meshed network of small streets to enable variation in route choice. In parks and natural areas, several alternative paths of various lengths could be provided. Shortcuts could be arranged, as they are useful both for variation of path choice and flexibility in route length. Paths in green areas could also preferably be well-connected to the urban mesh around them at several distinct ‘entrance points’ to offer even more variation in path choice.

Cater to different walking needs through proximity, availability and connectivity in a fine-grained scale

4. Connect distinct green areas with the built environment to offer walking choices

One practical suggestion than can be made is to carefully plan how a town can connect as close as possible to natural areas. To have different nature types close by – such as parks, forests and the sea – seems to offer qualities to the walking experience. Distinct green areas nearby provide for the possibility of combination into promenades that offer different impressions and increased stimulation along the route.

To establish and maintain several distinct types of green areas nearby the town centre (and other densely populated districts) would be advisable to the extent possible. The objective would be to develop distinct greenscapes near each other and near the built environment, to offer the possibility of combining different environments in one walking bout, and thereby providing for choice and variation. Depending on the type of natural context a municipality is situated in, different kinds of nature types can be connected. If there are forests around a town, they could be tended to bring forward their distinct characters, due to different tree species, light conditions and animal presence. For green areas in the built environment, distinct smaller parks could be interspersed in town, each with its own 'personality' and different types of plants.

Proximity in between these greenscapes, as well as to the town core is important to make it possible to combine different green areas as part of walks in practice because to make daily walks feasible they need to be fitted into a reasonable span. Availability is not only about crows-eye but also about mental distance; natural areas could likely be made to feel topologically closer to the built environment through connections with straight paths, clear signposting and clear continuations after crossing car roads. Also when planning new green areas – including sizes from small pocket parks to larger greenscapes – proximity is important; green spaces should preferably be placed close to where people move about, in town centres as well as in neighbourhood and district centres. That the park *is* near (physical/temporal distance) as well as *feels* near (mental distance) through its integration with the surrounding urban weave would thus be something to strive for.

5. Plan in a fine-grained scale for proximity and availability of uses

A suitable street network layout can facilitate convenient access to uses in the built environment. One important lesson to draw when planning and designing both additions to town cores as well as changes in the existing town fabric in regards to this topic is to plan in a fine-grained, pedestrian scale. For legibility and easy orientation, it seems advantageous with a rectilinear, regular street network which provides a fine mesh of straight, long streets that offer long sight-lines. In comparison to an irregular street pattern with cul-de-sacs, these long streets may make it easier to orientate and navigate within the town.

Walking distance to destinations seems to be a key issue. It would be beneficial for walkability if shops, stores, public transport, workplaces as well as leisure time activities (to the extent possible) could be planned to be within walking distance from people's homes. It appears central to have access to a fine-grained mesh of destinations or attractions to walk to present in a distributed way across the town centre. A rich variety and high concentration of storefronts along town centre streets – i.e. many store-fronts per wall (and street) metre – appears to be beneficial in facilitating a large variety of shops within a walking distance. When planning redevelopments one suggestion for walkability would be for municipalities to prioritise a small scale; it would probably be better to plan for several uses laid out in a compact way rather than implementing big box stores with a lot of parking.

Orient pedestrians about routes and destinations

6. Implement a pedestrian wayfinding system

In my point of view, the 'Path of health' navigation maps and signage along walking loop trails in nature provide something quite unusual; coherent information catered to walkers. Glancing the maps posted along the loop, it is easy for the walker to know her position and where to continue to walk. It could be recommended that this level of thought is put into information for walking in form of physical maps and signage in a uniform system across the whole town, or at least in and around the town centre. The wayfinding system already implemented in London can serve as an excellent blueprint. Lessons to be learnt from "Legible London" is to implement a unified system of physical heads-up maps for easier orientation, together with signage and fingerposts, with high visibility, good legibility and progressive disclosure for increased usability.

Both wayfinding systems ('Path of health' and 'Legible London') show that it can be convenient to know how many minutes it takes to walk to a destination (instead of reading distances in kilometres). Another conclusion to be drawn from an integrated interpretation of these two systems is that high-quality wayfinding information is useful both in urban and natural contexts.

An excellent pedestrian system, besides showing you how to get from A to B, also may help you to grasp how different areas and destinations are situated and connected in relation to each other. To present which destinations are available within a walking distance is another key functionality. Information about green areas, shops and tourist attractions are some examples of destinations what can be relevant to include in a pedestrian information system.

7. Establish information channels on universal access to public spaces

Unfortunately, information on the state of the physical environment that would be useful for people with physical disabilities seems to be very lacking, or almost non-existent. It would be recommendable for a municipality to include accurate information of this kind, for example on where dropped kerbs and adapted zebra crossings are available, on maps as part of the pedestrian wayfinding system that has been suggested on the previous page. It would also be useful to show on maps which spaces (e.g. shops) that are accessible to the public through level access from the street or via correctly inclined ramps.

Conditions for universal access can in some aspects change rapidly, e.g. because of ice on a street in winter, or because a building recently has been adapted for wheel-chair access. Digital information could provide an advantage here, as it is easy to update the information and thereby maintaining its accuracy. A pro-active municipality could investigate the possibilities of facilitating Internet-based information on universal accessibility to mobile phones and computers so that all citizens could get to know which streets can be accessed.

Crowd-sourcing could be designed as a part of the project, which would mean that inhabitants can send communicate directly with the municipality when a barrier is found. One suggestion could be a smartphone app where the inhabitant can easily take a photo and write something short about the hindrance. The information can be sent directly to the municipality, including map coordinates which makes it much easier to quickly situate the exact location of the hindrance. In this way the municipality could get systematically and geographically structured information on barriers to address the problems effectively.

Adapt public spaces towards universal accessibility

Physical feasibility is a hands-on subject, with several practical applications for urban planning and design. Free movement may be taken for granted for able-bodied, but unfortunately due to sub-standard street configurations, people with disabilities often do not enjoy the same freedom. In my opinion, universal design needs to be prioritised in urban planning and design, to provide democratic access to public space for all inhabitants.

8. Implement dropped kerbs regularly, especially at pedestrian crossings

To offer dropped kerbs regularly is a key element in providing for a universally accessible town. High kerbs are a severe limit to freedom of movement, that either make it impossible to traverse the street with a wheelchair or lead to a risk of falling. It would thus be advisable to implement dropped kerbs regularly across towns, especially at all pedestrians crossings.

9. Construct pavements sufficiently wide and even

When constructing new pavements, it seems advantageous that the space for pedestrians is sufficiently wide, with clearly separated designated areas for cyclists. One suggestion could be to make pavements wide enough so that two wheelchair users can cross paths without problems. Another important aspect is the slope, that unfortunately not always is possible to control due to topographical conditions. However, when possible, pavement slope should be kept low so that wheelchair users can move about without risk for tilting.

10. Use suitable pavement materials for smoothness

According to the participants, the best material for moving about by wheelchair was without doubt asphalt, with granite oblong flagstones as the second-best material. In new developments, it can be recommended to make it mandatory to use materials that work well for people with physical disabilities, and therefore asphalt should be the default, and granite oblong flagstones only used in those cases where environmental preservation of the streetscape demands it. If these granite flagstones are used, they must be laid out correctly with no gaps and no horizontal differences.

For historic towns such as Varberg with a lot of stone-clad streets, existing environments probably need to be adapted so that everyone can traverse those places. To replace stones, especially the bigger ones, with more appropriate pavement material is a key issue. These could be replaced either with asphalt or with "tracks" of granite oblong flagstones. According to the policy of the Varberg municipality (Varbergs kommun, 2012) granite oblong flagstones "tracks" are implemented step-by-step to create a mesh of adapted streets in the centre.

11. Put resources towards swift maintenance of pavements

It would be advisable for towns and cities to maintain pavements well-kept to reduce accidents. Unevenness is a factor that can be dangerous for people due to the risk of fall accidents. A municipality that wishes to minimise this kind of risk needs to work proactively with eliminating unevenness on its streets. Another type of irregularity is due to objects on the pavements. In my opinion, shop owners that put unwieldy objects for advertising on the pavement need to be reprimanded or fined for obstructing the passage; it should not be accepted to limit the movement of disabled people through putting paraphernalia for private profit in the public streetscape.

Nurture cultural heritage and coherence in the townscape

12. Sustain the cultural heritage of the built environment

Urban environments with cultural heritage need to be taken care of; if historic buildings are destroyed they are utterly lost as they are impossible to reconstruct from scratch. To cultivate the cultural heritage through caring for old buildings seems to be important for inhabitants, as old, preserved buildings appear to contribute to a feeling of continuity of and identification with the built environment; put in other words they facilitate place attachment. Even though their value may not be captured by traditional economic analyses, old buildings may have a great value in the heart and mind of local people.

One good way for a municipality to foster place attachment or sense of place probably would be to sustain the cultural heritage in the form of old buildings. This does not mean that history should freeze and nothing should happen. It rather means that when modifications are made they should be made gradually and gentle, so the thread of history is continued rather than severed. In my opinion, the ideal situation would be to be able to find a balance between conservation and adaptation of the cultural heritage, so that those buildings have a continuous relevance both economically and culturally; if a use can be found for a historic building that would bring some earnings, it could be a way to (at least partially) fund conservation efforts. When a building is in active use, both inhabitants and politicians presumably would be more aware of the building, something which potentially could aid towards a stronger sense of place or place attachment and greater support for the sustenance of the building as part of the local cultural heritage.

13. Respect the scale and height of the existing townscape when adding new buildings

It would probably be an advantage for place attachment if new buildings could be planned so that they work together and co-exist in tune consonance with existing buildings around them; to find their place in the town weave. A key issue for coherence in the urban built environment seems to be a fairly uniform building height. When operating in the existing fabric of the town core a suggestion to a municipality could be to try to adapt new buildings to the existing height; if new buildings need to be taller it seems advisable to strive for them to be maximum two storeys higher than the surrounding buildings. The tallness of buildings seems to be something that affects the impression of coherence quite much; abrupt changes of height in the town weave seemingly create ruptures in how the town is experienced while walking. Instead of putting up higher buildings here and there in the town centre, which would lead to a great loss of uniformity, a suggestion could be to plan taller buildings in neighbourhoods that are built from scratch or already have buildings of a taller size.

Another important aspect is the horizontal scale. It seems advisable to maintain the rhythm of many smaller premises (e.g. shops), rather than plan larger scale developments that occupy a larger quantity of wall or street metres and therefore presumably would create a rupture in the town weave as experienced while walking.

14. Integrate new buildings to create a mix of old with something new

To nurture cultural heritage does not mean that a town should be frozen in time. New buildings can provide new aesthetic stimulation as well as added uses and functions to the townscape. In my opinion, new buildings could both be products of their time, with their distinct style, and also engage with the surrounding built environment in intelligent dialogue. Put in other words, a new building optimally could both relate to its built context, for example in coherence with the existing scale, and simultaneously provide a new dynamic to the built environment with its crisp, contemporary architectural design.

Make walking a safer experience

15. Increase perceived safety through an improved visual overview

It is suggested that for improved perceived safety bushes are kept low, and replaced with other types of greenery that do not block visual overview in all locations along walking routes where this is motivated for increased safety. It would be advisable to be in touch with residents, for example through focus groups, to know where to focus the maintenance.

16. Improve public lighting

Lighting is critical for perceived as well as factual safety. It is advisable to provide public lighting which provides a uniform, continuous and thorough illumination of the movement paths pedestrians use, without blinding walkers. To improve public lighting a municipality could work together with its inhabitants to develop a lighting plan that is locally adapted.

17. Reserve adequate space for pedestrians, which is not encroached by cyclists

For pedestrian comfort, it is recommended to allocate sufficient space on pavements, and that this space is exclusively allocated to pedestrians (i.e. not encroached on by cyclists). For this purpose, there should be a clear demarcation, and a vertical difference may be considered.

18. Tame car traffic for more carefree walking

From a pedestrian point of view, cars should ideally be permitted only on a limited number of streets where they must be driven slowly. Medium-size car streets that are morphologically integrated with the mesh of surrounding street network can be transformed into avenues with street trees and a more generous space allocated to pedestrians. Different kinds of speed limitation measures could be implemented, as well as clearly marked raised pedestrian crossings in regular and frequent intervals. In general, it would be beneficial if car traffic could be limited in speed to allow for a convenient crossing of the street by pedestrians, for example through raised zebra crossings. Another suggestion is to create or expand a network of pedestrianised streets, as well as streets with pedestrian priority.

Facilitate sitting and lingering for comfort and social contact

19. Provide seating to facilitate rest and social contact

For outdoor seating, there are two main categories: private and public seating. For private seating, it could be suggested for a municipality to implement policies that make it possible for private companies to put out seating in suitable places (e.g. outdoor cafés).

For public seating, municipalities have direct control and responsibility. The quantity in number and quality in the design of public seating could be carefully considered to make it possible to both sit and rest as well as to socialise through talking with others straightforwardly and comfortably at pauses during walking bouts. However, a lack of adequate seating may limit these possibilities. To make seats available that are easily attainable, ample seating could be added at or very near places and routes that are commonly frequented by pedestrians. To provide attractive seating design, it is suggested to a) implement movable chairs (and maybe tables) instead of fixed ones, b) to configure chairs and sofas around tables, c) have seating in an angular relation to facilitate communication instead of in a straight line and d) group seating instead individual benches far away from each other. It seems recommendable to provide high-quality seating in both urban environments as well as natural settings, including parks within towns as well as surrounding, larger natural areas.

20. Design other outdoor artefacts that afford social interaction

Walking, in particular in the built environment but also in green settings, can fulfil not only a practical but also a social function; people can enjoy the element of meeting and talking with people while walking. In the built, urban environment it may be possible placing artefacts in the streetscapes that can work as 'social facilitators', such as public benches, flowers and public art. How these artefacts are oriented towards each other may influence how they facilitate social contact. In urban as well as natural settings it seems beneficial to plan for a "critical mass" of social artefacts that are situated near each other. In this way, several activities can occur next to each other, and if they are complemented by seating people can sit and rest in a context of other people rather than all alone on a single bench. For green environments, such a "critical mass" can be created for example by situating an outdoor gym, benches, a playground for children, seating areas with tables and walkways. Other ingredients or activities, such as outdoor grills or colourful public art, can also be fused into attractive constellations with different lingering and socialising possibilities at the same place.

Walking and lingering (e.g. sitting, socialising or performing another activity while pausing from walking) seem to be mutual aspects of enjoying outdoor places that can strengthen each other in a synergetic manner. To reach such a synergy, artefacts need to be designed and situated to form outdoor environments that provide for attractive, integrated experiences of walking and lingering. Through a holistic approach during architectural design of outdoor environments, it could be possible not to look at walking and lingering as isolated entities, but rather design for a mingling of both.

6.4 Research implications

Contributions to knowledge

This study seems to be a pioneer within PhD theses in the architecture field using walk-along interviews. A literature search for PhD theses in English, Portuguese, Spanish and Swedish with walk-along interviews as research method which referenced one of the renown works of Carpiano (2009), Kusenbach (2003) or Van Cauwenberg et al. (2012) was performed, but no PhD study written by an author affiliated with an architecture university department could be found. However, three PhD theses were encountered with authors affiliated to departments in adjacent fields: geography and urban studies by Foster (2016), urban and regional planning by Zandieh (2017) and landscape architecture by Lindgren (2010).

This PhD thesis contributes to the development of the walk-along interview methodology in two ways. Firstly, the walk-along interview methodology has been proven to work very well for soliciting information about architecture and urban design aspects of the surroundings from participants during walks. It was much easier than expected to get the conversation flowing during the interviews; based on the compound experience of making 17 interviews, my evaluation is that the walk-along interview method contributed substantially towards successfully receiving so many valuable and thought-provoking reflections from the participants. I sincerely doubt it would have been possible to get people to open up in the same manner at traditional interviews; the walk-along interviews provided an unprecedented level of ease, flow and continuity in the conversation.

Secondly, this study contributes to the walk-along interview method regarding the technical configuration for the GPS and voice recording; practically everything the participants said could be transcribed due to excellent audio quality. (The technical setup is described in detail in *Appendix C. Detailed procedure guide*.) The combination of a voice recorder with one wired microphone on the researcher and a wireless Bluetooth microphone on the participant resulted in a recording with two independent audio sources that could

supplement each-other so that the transcription could become accurate. Particularly, the wireless microphone proved to be propitious. Firstly, as it provided a way to record participants' voices with high audio quality as it was placed on their jackets, close to their mouth. Secondly, the wireless microphone was small and non-intrusive for the participants to use; some of them even forgot that they had placed it on their jacket.

Regarding the study findings, the main strength is the holistic approach. Thanks to the use of qualitative methodology, this PhD study can present a multi-faceted view on how people prefer their walking environments to be configured, ranging from the socio-environmental perspective on safety, via physical aspects of a zoomed-out level such as urban accessibility, to relations between people and buildings in place attachment and down to details of pavement materials in the physical feasibility category. Findings in areas that are novel or rather unexplored research-wise are also presented. This holds especially true for the findings on the theme of 'Stimulation through variation and change', where there is a lack of earlier research in an architecture and urban design perspective. Information for universal access is another area articulated in this thesis, and although earlier research exists on the topic, it is scarcely explored. Personally, the findings on lingering options for comfort and social contact were the most through-provoking in relation to architectural practice (although the area is not entirely novel in research). The participants made me see that walking and lingering have a symbiotic relationship with each other, and opened up ideas for how to facilitate walking through social outdoor artefacts.

To summarise, the contributions of this study are threefold, encompassing developments in methodology as well as in findings. Firstly, this study corroborates that walk-along interviews work well to solicit comments about architecture and urban design aspects of the outdoor environment. Secondly, a robust technical setup for high-quality audio recording with minimum intrusion to the interviewee is developed. Thirdly, moving on to findings, this PhD thesis contributes knowledge-wise to a holistic, general and multi-faceted view on walkability in research. It also provides some particular insights on rarely explored areas, especially on the importance of walkscape variation and change and also regarding information for universal access and social artefacts to facilitate lingering as part of walking.

Limitations of the study

Much of the technical procedure had to be put together from scratch as no references were available, leading to a lot of time used for trial and error. For audio recording, a procedure was developed that worked very well. For the route recording, I would have liked to explore the possibilities of using the GPS route data further if more time were available. It would have been enriching to be able to couple all the participants' statements with the locations where they were made automatically and continuously, instead of using a partly manual procedure.

The participants in the main walk-along interview study were mostly older, and more often female than male. Some participants had physical disabilities. Put together this study falls somewhat in-between in its focus; it is neither generalised (with participants that are similar to the whole population in age, gender and ableness distribution), nor specialised on one group.

The time after performing the interviews was to a large extent consumed through transcription of all interviews, to produce a document of over 110 000 words. If I would have had more time in Sweden it would have been fruitful to do extra interviews with new participants with tailored questions on specific themes, constructed as a follow up to interesting aspects salient in the interviews already made. For example, I would have liked to make interviews to further explore themes such as environmental artefacts for lingering and socialising as well as configuration and design of pedestrian wayfinding systems.

Regarding the findings in themselves, an inherent limitation as a consequence of the choice of a qualitative paradigm for the study was that the findings could not be extrapolated to a population; they are valid only for the specific participants interviewed and the specific contexts and places where the interviews were made. On the other hand, if a quantitative paradigm were chosen, categories and questions would have had to be fixed from the beginning, which would have made the research design too rigid for the exploratory nature of this thesis. As the theme of how inhabitants evaluate walking in an urban context is a quite unexplored scientific subject, a qualitative research design was deemed more suitable.

Areas for further research

A primary recommendation for further research is to use walk-along interviewing as the methodology for more PhD studies in architecture, urban design and planning as well as landscape architecture, as it has proven to be a fruitful method to solicit responses regarding the built and natural environment. Walk-along studies on walkscapes made in different locations can then be compared to observe differences and similarities in how people evaluate walking in their respective built environments. Future research could enrich the understanding through studying specific groups: for example younger or older; female or male; disabled or able-bodied. Alternatively, a general perspective could be adopted, with participants from groups in similar proportions as being present in the population.

Three specific topics for further studies of a more focused kind are recommended to address scarcely researched areas. Each of these three topics can be the entire focus of individual studies based on the walk-along interview methodology. Firstly, the importance of variation and change in walking can be explored, as almost no research could be found on this topic. A second suggestion is a study on pedestrian information; although there are studies made on wayfinding, there is a lack of research on information for universal access for people with physical disabilities. Thirdly, social and lingering options linked to walking is a scarcely researched field that would benefit from more studies.

Methodologically speaking, although outside of the architecture research sector, it would be helpful if future research could develop procedures and computer programs for making it easy to synchronise interview audio and transcripts with GPS tracks to enable a convenient method to enable effortless geolocalised analysis.

Moving to quantitative methodology, future research can evaluate how important different aspects are for wellbeing in walking. A survey-based study can include salient factors, developed from qualitative studies, that participants could classify the importance of. Another possible quantitative development can be stated-choice studies where people could compare different walkscape scenarios and choose which one they prefer. Combined thoughtfully, the individual strengths of qualitative and quantitative approaches can bring synergies to strengthen the synthesised research results.

6.5 Conclusion

This study explored how environmental aspects facilitate or discourage walking, via qualitative walk-along interviews with 18 inhabitants of Varberg, Sweden. Interview transcripts were examined through qualitative content analysis together with GPS route data.

Few earlier qualitative PhD studies have looked holistically on walkscape preferences and experiences. The principal contribution of this study is to draw a nuanced and detailed picture of environmental aspects linked to willingness to walk. Participants were motivated by having variation and choice in walking routes as well as observing seasonal shifts in nature to walk regularly. To have walkscapes for leisure walking and destinations to fulfil tasks nearby home also made participants walk more. Wandering in green environments was preferred for solo walking, and the urban streetscapes of the town centre were preferred for social walking as well as for enjoying the vistas of historic buildings. Shortcomings were experienced in perceived safety towards crime; lack of street lighting and large bushes limited the willingness to walk when dark. Other insufficiencies affecting walking propensity were lack of pedestrian information and physical adaptation for universal access.

Design guidelines for urban and green areas linked to encouraging walking have been developed in this research project, summarised below:

- Plan multiple routes and accentuate environmental changes
- Implement a pedestrian information system for wayfinding and universal access
- Adapt public spaces towards universal accessibility
- Nurture cultural heritage and preserve the scale of the built environment
- Improve safety with a better visual overview, reserved pedestrian space and traffic calming
- Facilitate sitting and lingering via social artefacts in walkscapes

This study has indicated initial directions to practical pathways towards designing outdoor environments attractive for movement by foot. Hopefully, future studies will blaze a whole network of trails in this area, as facilitating increased walking is important for individual well-being as well as for the necessary societal transition towards sustainable transportation modes to mitigate environmental climate change.

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Appendices

Appendix A. Term of informed consent

Research project title: By foot at ease: streetscape aspects for wellbeing in walking

University institution: PROPAR, Universidade Federal do Rio Grande do Sul (UFRGS)

Main supervisor (responsible): Dr Beatriz Maria Fedrizzi, UFRGS

Co-supervisor: Dr Anna-Johanna Klasander, Chalmers University (Chalmers)

Researcher: Architect Ms. Sc. Thomas Höjemo, educated at Chalmers; PhD student, UFRGS

Aim of the research project

The meaning of walkability is to what extent it is easy and pleasurable to move about by foot in a neighbourhood of a city, both for transport purposes and for leisure walking. The theme of this PhD project is to explore how urban dwellers experience to move about on foot in their vicinity. The objective is to contribute towards more knowledge to in the future be able to design urban neighbourhoods better adapted to walk in. The town of Varberg, Sweden is the geographical delimitation for the study.

Interviewees in the research project

The interviewees in this research project are adults living in the town of Varberg.

How the interview is made

We talk at the same time as we walk in a 'walk-along' interview during around 30-60 minutes along a route you choose freely in your vicinity. During the walk you tell how you experience walking by foot. Your participation is valuable for the research project. Your perspective is important to grasp a fuller picture of how people experience to walk in their neighbourhood.

What the interview is about

During the walk you tell how you experience moving about on foot there. Please mention aspects that affect you positively and/or negatively during the walk, as well as if there is something you feel is lacking in the outdoor environment. Open questions will be stated, e.g. of type "how" or "why" rather than affirmative questions. You will also be able to talk openly and spontaneously about subjects in relation to the topic, objective and aims of the research project.

Disadvantages of participation

Your participation in the study is voluntary. You can withdraw your participation whenever you want. The 'walk-along' interview entails more or less the same risks as any promenade in town. To minimise the risk for accidents we walk in a calm pace and are diligent before crossing the street. We will avoid to walk where/when it is slippery.

Recording and confidentiality

The interview will be recorded. The route we walk will be saved on a digital map. Your name will be replaced with a code to preserve your anonymity when the interview material is analysed. This means that it will not be possible to know that you have participated.

If we get contacted by someone (a third person) during the interview we must directly ask him/her if he/she accepts to be recorded.

Advantages of participation

To participate in the research project does not entail any direct benefit for you. However we hope that the result of the research project shall be of use to improve the street environment for walking in the future.

No compensation

You will receive no compensation to participate in the research project.

About this Term of Informed Consent

This Term of Informed Consent is drawn up in duplicate, one copy for you to keep and one copy for the researcher to keep.

After you have now received information about the research project, we now ask for your informed and free consent to participate in this research project as interviewee through your signature below.

_____

Place and date

_____

Interviewee: Signature

_____

Interviewee: Name in block letters

_____

Researcher: Signature

_____

Researcher: Name in block letters

Contact information to the researchers

(Contact information to researcher, supervisor and co-supervisor)

Contact information to the Ethical Commission at UFRGS

Address: Av. Paulo Gama, 110, sala 317, Anexo 1 da Reitoria, Porto Alegre, 90040-060 RS, Brazil

Tel: +55 51 3308-3738

Appendix B. Tables for answers to introductory questions

These tables have been prepared according to orientation in person with Dr Jandyra Maria Guimarães Fachel and Gilberto Pereira Mesquita at the statistics advisory centre 'Núcleo de Assessoria Estatística' at Universidade Federal do Rio Grande do Sul.

Decade of birth per participant

	Frequency	Percent	Cumulative Percent
1940-1949	7	39 %	39 %
1950-1959	6	33 %	72 %
1960-1969	4	22 %	94 %
1970-1979	1	6 %	100 %
Total	18	100 %	

Table 17. Decade of birth per participant.
Source: Author.

Gender per participant

	Frequency	Percent	Cumulative Percent
Female	12	67 %	67 %
Male	6	33 %	100 %
Total	18	100 %	

Table 18. Gender per participant.
Source: Author.

Ablebodyness per participant

	Frequency	Percent	Cumulative Percent
Able-bodied	14	78 %	78 %
With locomotor disability	4	22 %	100 %
Total	18	100 %	

Table 19. Ablebodyness per participant.(self-declared)
Source: Author.

Participant number per interview			
	Frequency	Percent	Cumulative Percent
1 participant	16	94	94
2 participants	1	6	100
Total	17	100	

Table 20. Participant number per interview.
Source: Author.

How many days per week do you walk in your neighbourhood?			
Days per week	Frequency	Percent	Cumulative Percent
0	0	0	0
1	0	0	0
2	1	6	6
3	1	6	12
4	1	6	18
5	2	12	29
6	1	6	35
7	11	65	100
Total	17	100	

Table 21. Q1) How many days per week do you walk in your neighbourhood?
Source: Author.

What are the most common reasons you walk here? Frequencies (Multiple choice)			
Category	Responses		Percent of Cases (n=17)
	N	Percent	
Accomplish task	10	31 %	59 %
Green aspects	2	6 %	12 %
Health and wellbeing	11	34 %	65 %
Social aspects	4	13 %	24 %
Urban accessibility	5	16 %	29 %
Total	32	100 %	188 %

Table 22. Q2) What are the most common reasons you walk here?
Source: Author.

What is positive with your neighbourhood regarding walking? Frequencies (Multiple choice)

Category	Responses		Percent of Cases (n=17)
	N	Percent	
Green aspects	10	37 %	59 %
Physical feasibility	2	7 %	12 %
Place attachment	3	11 %	18 %
Safety	2	7 %	12 %
Urban accessibility	10	37 %	59 %
Total	27	100 %	159 %

Table 23. Q3) What is positive with your neighbourhood regarding walking?
Source: Author.

What is negative with your neighbourhood regarding walking? Frequencies (Multiple choice)

Category	Responses		Percent of Cases (n= 12) [a.]
	N	Percent	
Green aspects	2	13 %	17 %
Physical feasibility	5	33 %	42 %
Place attachment	1	7 %	8 %
Safety	6	40 %	50 %
Urban accessibility	1	7 %	8 %
Total	15	100 %	125 %

a. Of 17 interviewees in total, 12 were valid cases and 5 were missing cases.

Table 24. Q4) What is negative with your neighbourhood regarding walking?
Source: Author.

Q5) (i.e. question 5) was analysed qualitatively (on page 139) and therefore does not have a table.

What in the outdoor environment makes you choose to walk more?
Frequencies (Multiple choice)

Category	Responses		Percent of Cases (n = 17)
	N	Percent	
Accomplish task	1	4 %	6 %
Green aspects	10	40 %	59 %
Health and wellbeing	5	20 %	29 %
Physical feasibility	1	4 %	6 %
Place attachment	1	4 %	6 %
Social aspects	3	12 %	18 %
Urban accessibility	4	16 %	24 %
Total	25	100 %	147 %

Table 25. Q6) What in the outdoor environment makes you choose to walk more?
Source: Author

Combined questions:
What are the most common reason you walk here?
What is positive with your neighbourhood regarding walking?
What is negative with your neighbourhood regarding walking?
What in the outdoor environment makes you choose to walk more?

Frequency per Total number of responses (Multiple choice)

Category	Responses		Percent of Cases (n= 63) [a.]
	N	Percent	
Accomplish task	11	11 %	17 %
Green aspects	24	24 %	38 %
Health and wellbeing	16	16 %	25 %
Physical feasibility	8	8 %	13 %
Place attachment	5	5 %	8 %
Safety	8	8 %	13 %
Social aspects	7	7 %	11 %
Urban accessibility	20	20 %	32 %
Total	99	100 %	157 %

a. Of 68 cases in total, 63 were valid cases and 5 were missing cases.

Table 26. Q2), Q3), Q4) and Q6) combined – analysed per response.
Source: Author.

Combined questions:
What are the most common reason you walk here?
What is positive with your neighbourhood regarding walking?
What is negative with your neighbourhood regarding walking?
What in the outdoor environment makes you choose to walk more?

Frequency per Total number of responses (Multiple choice)

Category	Responses		Percent of Cases (n= 63) [a.]
	N	Percent	
Accomplish task	11	11 %	17 %
Green aspects	24	24 %	38 %
Health and wellbeing	16	16 %	25 %
Physical feasibility	8	8 %	13 %
Place attachment	5	5 %	8 %
Safety	8	8 %	13 %
Social aspects	7	7 %	11 %
Urban accessibility	20	20 %	32 %
Total	99	100 %	157 %

a. Of 68 cases in total, 63 were valid cases and 5 were missing cases.

Table 27. Q2), Q3), Q4) and Q6) combined – analysed per interview.
Source: Author.

Appendix C. Detailed procedure guide

In the following text a detailed explanation will be given to the procedure used for the study. Firstly, which equipment was used will be detailed, followed by a detailed step-by-step account from the preparations before the interview, to the procedure during the interview and finally how data was configured to be useful for the purpose of analysis.

Equipment

Procedure for connecting the equipment

In the beginning of the walk-along interview the participant is asked to attach a small Bluetooth microphone to the jacket, which transmits a wireless signal to a Bluetooth receiver (that via an Y cable) is connected to a small Portable voice recorder that the researcher has in the pocket. Additionally, the researcher has a wired microphone attached to the jacket which is also (via the Y cable) connected to the Portable voice recorder. In this way both the audio of the participant and the researcher can be clearly recorded. Finally, the researcher records the GPS route made during the walk-along with a mobile GPS app.

Equipment list

- Portable voice recorder: Sony ICD-UX560
- Y-cable (Y-cable 3,5mm TRS-3,5mm TSF): Hosa YMM261
- Electret condenser microphone: Sony ECM-CS3
- Bluetooth Wireless microphone system: Sony ECM-AW4 with:
    - Bluetooth microphone
    - Bluetooth receiver
    - Cable (to connect to the side jack (with ear symbol) of the Bluetooth-receiver
- Batteries: Energizer Ultimate Lithium AAA 1,5 V (bring 6 batteries; 4 are spare)
- Mobile: Motorola Moto G5 Plus (Android)
- Mobile app for GPS recording: OSMTracker

- Detailed procedure guide (i.e. this text)
- Blue ball point pens (2 of different brands)
- Informed consent sheets (2 copies; A4 format)
- Cartonnage to have support for writing outdoors (A4 format)
- Laptop: Thinkpad X1 Carbon (Debian Linux)
- USB cable
- GPS programme: JOSM (Can be used on Linux, Mac and Windows)
- Media player: VLC (Can be used on Linux, Mac and Windows)
- Audio editing software: Audacity (Can be used on Linux, Mac and Windows)

Technical preparations before interview

These preparations are made approximately two hours before a walk-along interview.

1. Check that all the equipment is fully charged

- Connect the Portable voice recorder to the laptop via the USB connector.
- Check that the battery symbol on the Portable voice recorder indicates full battery.
- Put in new batteries in the Bluetooth receiver and microphone as they drain quickly.
- Turn on the Bluetooth receiver and microphone; check that both show a steady blue light.
- Check that the battery of the Mobile has at least 80 % charge (or charge it).

2. Connect the equipment

It is essential to keep track of which of the two Bluetooth devices is which. The Bluetooth receiver and the Bluetooth microphone look quite a like, however they can be distinguished by a marking: the Bluetooth receiver is marked with RECEIVER in small text.

- Connect the Y-cable to the jack with a red circle on the Portable voice recorder.
- Connect the Electret condenser microphone to the black jack on the Y-cable.
- Connect the cable from the side jack (with an ear symbol) on the Bluetooth-receiver to the red jack on the Y-cable.
- Raise the volume on both the Bluetooth microphone and the Bluetooth receiver by pushing 20 times on the + button on each of the two devices.

3. Synchronise time

Synchronise date and time on the Portable voice recorder with the date and time on the mobile. (Unfortunately it is not possible to get a really precise synchronisation, as the Portable voice recorder used here does not allow to set or display time on second level.)

- On the Portable voice recorder, press >>| until Settings is shown. Then press >.
- Go down to Common settings. Then press >.
- Go down to Date&Time. Press >.
- Set Date/Time should now be selected. Press > again.
- Press >>| until that the minutes are selected (four times).
- On the mobile, observe the time.
- On the Portable voice recorder, adjust the minute number by pressing up or down so that it corresponds with the actual minute number on the mobile.
- Wait until that the second has reached 55 on the mobile.
- Now, on the Portable voice recorder press Up and then > to save.
- Then press Back/Home two times
- Verify that the Mobile and Portable voice recorders time settings correspond.

4. Test the equipment

Put the mobile in silent mode. Test the recording through both the Bluetooth and the Electret condenser microphone. Put in the cable to the Bluetooth microphone in the red contact of the Y-cable. Make three test recordings:

1. only with the Bluetooth microphone connected
2. only with the Electret condenser microphone
3. with both the Bluetooth and the Electret condenser microphone

After the test recordings are made the Bluetooth microphone and transmitter should both be switched off temporarily, to preserve the battery charges (until before the interview). Now test the GPS app of the mobile. In the app OSMTracker, press the icon (+). Walk a short bout. Make a test recording through pressing Voice annotation in the app. Press Stop. Save the bout through pressing the diskette symbol in the upper right corner.

Transfer and verify audio recordings

These instructions are first used for testing purposes before the interview, and then used again after the interview to transfer and verify the real recording.

5. Transmit and verify recordings

- Connect the Portable voice recorder to the laptop through the USB connector.
- Copy the test recordings to a folder in the computer.
- In the OSMTracker app in the mobile, choose the menu button (three buttons in the right-hand corner) and choose Export all as GPX.
- Connect the USB-cable to the laptop.
- On the mobile, draw down the curtain menu and choose Transfer files.
- On the computer, copy everything via a file browser from the directory osmtracker of 'Shared internal storage' to a directory on the laptop.
- Run the backup program(s) on the computers so that files are backed up.
- On the computer, open the mp3 files that you transferred from the Portable Voice recorder in the program Audacity and check that the voice recording is clear.
- On the computer, open the GPX file (GPS recording) from the osmtracker directory in the JOSM program. Add a layer via the Background images → OpenStreetMap Carto. Check that your GPS route is shown correctly.

During the walk-along interview

6. Start the walk-along interview

- Activate both the Bluetooth recorder and the Bluetooth receiver.
- Raise the volume on both of them, by repeatedly press the + button 20 times.
- Give information to the participant about the interview (see Interview guide).
- Ask the participant to fasten the Bluetooth microphone to their jacket.
- Start the audio recording and ask the participant to say something.
- Stop the test recording, and check that the recording in fact is audible.
- First start the Portable voice recorder by pressing Play.
- Then start the GPS mobile app OSMTracker by pressing (+).
- Say: “Then the recording is on and we can start to walk!”
- After we have started walking, press ‘Voice annotation’ in OSMTracker.
- Say “It is the <day> of <month> <year>. The time is <hour>:<minute> **now** and we walk past <Example Street number 12> to the left.”
- Press Stop in the GPS app.
- Say: “Then we can start to talk. I will start with some questions.”
- The participant responds to questions (see Interview guide) and talks about the topic.

7. End the walk-along interview

- Say: “Then will I stop the recording and the interview is completed. I am grateful you could participate in this interview. Thank you!”
- Press the Stop button on the Portable voice recorder, and then press the Diskette symbol in the mobile GPS app OSMTracker. Finally, ask to have the Bluetooth receiver back from the participant before you say goodbye.

After coming back: transfer and synchronise data

8. Transfer all data

Directly after coming back from the walk-along interview all recordings should be transferred to the computer.

- Repeat all steps stated in **5. Transfer and verify audio recordings** (two pages back).
- Turn off all equipment to save on battery.
- Make manual notes of observations and reflections remembered from the interview.
- Listen to the sound recording and make annotations.

9. Synchronise audio channels in Audacity

Open the voice recording file in Audacity. Split the two stereo channels by clicking in the little box to the left and choose 'Split stereo track'. In case the volume was not raised sufficiently on the Bluetooth voice recorder (i.e. that the voice amplitude differs a lot between the two channels) do like this:

- Select the lower half (that has lower amplitude)
- Choose the menu option Effect → Amplify.
- Digit 30 and press OK.
- If the result does not look OK press Ctrl+Z and instead digit 3,8.

As the Bluetooth transmission generates a small delay a disturbing echo effect occurs. This can be mitigated by selecting the upper half of the sound diagram. Choose the small icon in the icon field with six small icons that look like this: ↔ and is named Timeshift. Zoom in and move the whole upper half 0,05 seconds to the right. Finally export to wav-format. Check that you are in the right directory, Audacity unfortunately often shows the directory of the last interview instead of the current one.

10. Synchronise audio and GPS in JOSM to be able to see what was said exactly where

- Open the GPS-file (GPX) in JOSM
- Choose the menu options Background images → OpenStreetMap Carto (Standard)
- Right click in JOSM on the very first layer whose name starts with a date.
- Then choose Import sound in the menu. Please note that JOSM can show the directory of the last interview instead of the current one. Therefore you will need to change to the correct directory first. Then choose the sound file that ends with wav.
- Check the sound marking file (3gpp) in VLC to recognise the sound mark.
- Go back to JOSM.
- Zoom in so that you see the start of the track, including the mark 'start'. Click on the loudspeaker icon right next to the mark 'start'.
- Listen until you hear the sound mark. Immediately, press . (dot) on the keyboard to pause the playback.
- Press the shift button and simultaneously drag the orange arrow just next to where it is written 'voice annotation'. Now a message should be shown, indicating that a mark/dot has been created and what number it has been allocated. Write down this number.
- Click on the number of the mark/dot and the sound shall be played back synchronised, so that the location of the map is synchronised with the sound uttered in exactly that place.

This concludes the detailed procedure guide; if it has been followed successfully the interview recording is now prepared for transcription.